REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

ADMIN-114

MODE CHANGE VERIFICATION FOR MODE 1&2 ENTRY

RO & SRO

CANDIDATE _____

EXAMINER _____

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Mode Change Verification

Alternate Path:

No

Facility JPM #:

Admin-114

K/A Rating(s):

System: Generic
K/A: 2.1.25
Rating: 3.9/4.2

Task Standard:

Perform Mode change verification and identify that ONLY the following do not meet their acceptance criteria:

- SR 3.3.1.1 for RPS Instrumentation RC Temperature TH (A Loop) is not met.
- SR 16.5.13.1 for the CBAST is not met.
- SR 3.3.1.1 Dummy Bistable is installed

Preferred Evaluation Location:

Simulator __X__ In-Plant _____

Preferred Evaluation Method:

Perform __X___ Simulate ____

References:

PT/1/A/0600/001 B, Enclosure 13.23

Validation Time: 20 minutes

Time Critical: NO

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Candidate: _____ Time Start: _____
NAME Time Finish: _____

Performance Rating: SAT _____ UNSAT _____ Performance Time: _____

Examiner: _____ _____/_____
NAME SIGNATURE DATE

==========

COMMENTS

SIMULATOR OPERATOR INSTRUCTIONS:

1. **Recall** Snap 213
2. **Import** files for ADMIN-114
3. **Update** CBAST Boron 10620 ppmB
4. **Place** Dummy Bistable Prop in B RPS Channel (RCP/flux trip)
5. Go to **RUN**

Tools/Equipment/Procedures Needed:

PT/1/A/0600/001 B (Instrument Surveillance Prior To Mode Change) Enclosure 13.23, Entering Modes 1 & 2 From Mode 3

READ TO OPERATOR

DIRECTION TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

Unit 1 startup in progress

Unit 1 in MODE 3

PT/1/A/0600/001 B (Instrument Surveillance Prior To Mode Change) Enclosure 13.23, (Entering Modes 1 & 2 From Mode 3) is in progress.

All control rod, APSR and related surveillances have been completed.

INITIATING CUES:

The CR SRO directs you to complete PT/1/A/0600/001 B (Instrument Surveillance Prior To Mode Change) Enclosure 13.23, Entering Modes 1 & 2 From Mode 3.

Perform all surveillance that are not already signed off and once that is completed inform the SRO of ALL surveillances you performed whose acceptance criteria was NOT met.

START TIME: _____

STEP 1:	**RPS Instrumentation RC Temperature TH (A Loop)** Verify computer readouts agree within 3°F (If OAC unavailable, 5°F in RPS Cab).	**CRITICAL STEP** ___ SAT
STANDARD:	Determine computer points **DO NOT** agree within 3°F by calling points up on the OAC. **CUE: If candidate goes to RPS cabinet, inform them that the RPS cabinet agrees with the OAC computer points**	___ UNSAT
COMMENTS:		
STEP 2:	**RPS Instrumentation RC Temperature TH (B Loop)** Verify computer readouts agree within 3°F (If OAC unavailable, 5°F in RPS Cab).	___ SAT
STANDARD:	Determine computer points **DO** agree within 3°F by calling points up on the OAC. **CUE: If candidate goes to RPS cabinet, inform them that the RPS cabinet agrees with the OAC computer points**	___ UNSAT
COMMENTS:		
STEP 3:	**RPS Instrumentation RC Flow** Verify total flow agrees within 4800 klbm/hr **AND** Verify **NO** computer alarms for high flow present.	___ SAT ___ UNSAT
STANDARD:	Determine computer points **DO** agree within 4800 klbm/hr by calling points up on the OAC. Determine **NO** computer alarms for high flow present by observing the OAC alarm screen.	
COMMENTS:		

STEP 4:	**CBAST** Verify equivalency of 1100 ft3 of 11,000 ppm boron per OP/0/A/1108/001 (Curves And General Information). Obtain CBAST level and boron concentration from the OAC or from Boron Board and CBAST level gauge. (**66 inches and 10620 ppmB**) Determine CBAST is in the inoperable range of Enclosure 4.15 (CBAST Concentration Vs. Level Curve)	**CRITICAL STEP** ___ SAT ___ UNSAT
STANDARD:		
COMMENTS:		
STEP 5:	**RPS Instrumentation RP RCP/Flux Trip** Verify no Dummy Bistable installed. Verify no trips present. Verify status annunciators operable (lamp test).	***CRITICAL STEP** ___ SAT ___ UNSAT
STANDARD:	*Determines that Dummy Bistable is installed on 'B' RPS channel (RCP/flux trip). Verify no trips present by observing Statalarms on 1SA-1. *Determines that 1SA-5/E-2 (RP Channel B Dummy Bistable Inserted) does not illuminate when performing an annunciators lamp test. **CUE: If candidate addresses possibility of burned out bulbs in 1SA-5/E-2 then inform them that we have replaced the light bulbs in 1SA-5/E-2 with bulbs known to be good.**	
COMMENTS:		
STEP 6:	**RCS Loops** Verify required RCPs (3 or 4) in operation with RCS flow indicated.	___ SAT ___ UNSAT
STANDARD:	Determine 4 RCPs are in operation by observing red on lights lit and normal pump amps. Determine RCS flow is indicated on RC Flow gauge on 1UB1.	
COMMENTS:		

STEP 7:	Inform CR SRO of any surveillances that are NOT met.	**CRITICAL STEP**
STANDARD:	Candidate should determine that the following surveillances are not met. • SR 3.3.1.1 for RPS Instrumentation RC Temperature TH (A Loop) is not met. • SR 16.5.13.1 for the CBAST is not met. • SR 3.3.1.1 Dummy Bistable is installed	___ SAT ___ UNSAT
	Cue: Ask candidate about any surveillances that were not met if not addressed.	
	COMMENTS:	
	END TASK	

STOP TIME: _____

CRITICAL STEP EXPLANATIONS:

STEP #	Explanation
1	This step is required to determine the condition is not met.
4	This step is required to determine the condition is not met.
5	This step is required to determine the condition is not met.
7	This step is required to inform surveillances NOT met.

CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

Unit 1 startup in progress

Unit 1 in MODE 3

PT/1/A/0600/001 B (Instrument Surveillance Prior To Mode Change) Enclosure 13.23, (Entering Modes 1 & 2 From Mode 3) is in progress.

All control rod, APSR and related surveillances have been completed.

INITIATING CUES:

The CR SRO directs you to complete PT/1/A/0600/001 B (Instrument Surveillance Prior To Mode Change) Enclosure 13.23, Entering Modes 1 & 2 From Mode 3.

Perform all surveillance that are not already signed off and once that is completed inform the SRO of ALL surveillances you performed whose acceptance criteria was NOT met.

Duke Energy Oconee Nuclear Station **Instrument Surveillance Prior To Mode Change**	Procedure No. **PT/1/A/0600/001 B**
	Revision No. **032**
Continuous Use	Electronic Reference No. **OP00964Z**

PERFORMANCE

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(ISSUED) - PDF Format

Instrument Surveillance Prior To Mode Change

1. Purpose

1.1 To verify proper operation of various instruments and systems prior to Mode change.

2. References

2.1 Technical Specifications (TS)

2.2 DPC/Oconee Nuclear Station Core Operating Limits Report (COLR)

2.3 UFSAR Chapter 16 Selected Licensee Commitments (SLC)

3. Time Required

3.1 30 minutes

4. Prerequisite Tests

None

5. Test Equipment

None

6. Limits And Precautions

6.1 PT/0/A/0600/001 A (Loss Of Computer) should be referred to upon a loss of computer or loss of a computer point or function needed for a surveillance.

6.2 When using Computer Points to perform a surveillance, the Computer Points MUST be used from a Computer Display Screen, which also indicates the Quality of the Computer Point.

- Computer Point Quality and Value MUST indicate as follows to be used for a surveillance:
  - GOOD with a Value that represents actual plant conditions
  - INHB with a Value that represents actual plant conditions
  - LALM with a Value that represents actual plant conditions
  - HALM with a Value that represents actual plant conditions
  - LOLO with a Value that represents actual plant conditions
  - HIHI with a Value that represents actual plant conditions
  - ALM with a Value that represents actual plant conditions.

7. Required Unit Status

7.1 Required Unit Mode stated in each enclosure.

8. Prerequisite System Conditions

None

9. Test Method

9.1 Component checks will be made according to information given in the applicable enclosures.

10. Data Required

10.1 Data requirements specified in applicable Enclosures.

11. Acceptance Criteria

11.1 Systems or components meet TS or SLC requirements applicable to surveillance step.

12. Procedure

12.1 Perform component checks prior to changing Modes within the required time frames using the appropriate enclosure.

12.2 Instrument operation may be checked either by reading appropriate recorder, gauge, etc., or by selecting computer point ID where applicable.

12.3 Dixson Indicators

12.3.1 Dixsons listed on Enclosure "Dixson Meter Information" are on an enhanced surveillance interval.

12.3.2 **IF** any Dixson listed on Enclosure "Dixson Meter Information" are found to be blinking with a reading of zero, no action is required unless a failure is suspected.

12.3.3 Dixsons **NOT** listed on Enclosure "Dixson Meter Information" are on a surveillance interval. These Dixsons have alternate methods of verifying input signal is valid.

13. Enclosures

13.1 Entering Mode 2 From Mode 1

13.2 Entering Mode 3 From Modes 1 & 2

13.3 Surveillances Prior To RCS ≤ 325°F

13.4 Entering Mode 4 From Mode 3

13.5 Entering Mode 5 From Mode 4

13.6 Entering Mode 6 From Mode 5

13.7 Surveillances Prior To Fuel Movement In RB

13.8 Entering No Mode From Mode 6

13.9 Entering Mode 6 From No Mode

13.10 Surveillances Prior To FTC Level < 21.34 ft Above Top Of RxV Flange

13.11 Surveillances Prior To RxV Head Installed

13.12 Entering Mode 5 From Mode 6

13.13 Surveillances Prior To Two DHR Loops **NOT** Operable

13.14 Surveillances Prior To Closing Any CRD Breakers With CRD System Capable Of Rod Withdrawal

13.15 Entering Mode 4 From Mode 5

13.16 Surveillances Prior To SGs Required For Heat Removal

13.17 Entering Mode 3 From Mode 4

13.18 Surveillances Prior To RCS > 325°F

13.19 Surveillances Prior To RCS > 350°F

13.20 Surveillances Prior To RCS ≥ 800 psig

13.21 Surveillances Prior To RCS ≥ 900 psig

13.22 Surveillances Prior To Main Steam Pressure ≥ 700 psig

13.23 Entering Modes 1 & 2 From Mode 3

13.24 Surveillances Prior To > 20% RTP

13.25 Surveillances Prior To > 40% RTP

13.26 Dixson Meter Information

Appendix

Enclosure 13.23

Entering Mode 1 & 2 From Mode 3

1. Initial Conditions

cpw 1.1 Unit is in Mode 3.

cpw 1.2 Review Limits And Precautions.

NOTE: SRs are only valid for ≤ 12 hours once enclosure is started. When > 12 hours from start time, a new enclosure is required.

cpw 1.3 Date and Time Enclosure started Today / 0700.

2. Procedure

2.1 Perform instrument checks as specified.

	COMPONENT	INITIALS	COMPUTER	REQUIRED CONDITIONS
SR 3.3.1.1	RPS Instrumentation RC Temperature T_H (A Loop)		O1A1692 O1A1693	Verify computer readouts agree within 3°F (If OAC unavailable, 5°F in RPS Cab). **IF** any of CR RCS temperature selectors are changed, notify Rx Engineering to evaluate and update Enclosure "Loop ΔT Vs. Reactor Power" of PT/1/A/0600/001 (Periodic Instrument Surveillance) for new selected inputs.
SR 3.3.1.1	RPS Instrumentation RC Temperature T_H (B Loop)		O1A1694 O1A1695	Verify computer readouts agree within 3°F (If OAC unavailable, 5°F in RPS Cab). **IF** any of CR RCS temperature selectors are changed, notify Rx Engineering to evaluate and update Enclosure "Loop ΔT Vs. Reactor Power" of PT/1/A/0600/001 (Periodic Instrument Surveillance) for new selected inputs.
SR 3.3.1.1	RPS Instrumentation RC Flow		O1A1549 O1A0877 O1A1420 O1A1712	Verify total flow agrees within 4800 klbm/hr **AND** Verify **NO** computer alarms for high flow present.
SR 3.1.6.1	APSR Alignment Limits	CPW	GD REG	Verify position of each APSR within 6.5% of group average.
SR 3.2.1.1	Regulating Rod Position Limits	CPW	GD REG	Verify regulating rod groups within sequence and overlap limits in COLR.
SR 3.2.1.2	Regulating Rod Position Limits	CPW	GD REG	Verify regulating rod groups within position limits on curve in COLR.

Enclosure 13.23

Entering Mode 1 & 2 From Mode 3

	COMPONENT	INITIALS	COMPUTER	REQUIRED CONDITIONS
SR 3.1.4.1	Control Rod Group Alignment Limits	cpw	GD REG GD SAFETY	Verify all Control Rods in each Group agree within ± 3.5% of group average. **IF** a Control Rod is > ± 3.5% of its Group average, refer to OP/1/A/1105/019 (Control Rod Drive System).
SR 3.1.5.1	Safety Rod Position Limits	cpw	GD SAFETY PI Panel	Verify each safety rod fully withdrawn.
SR 16.5.13.1	CBAST		O1E0161	Verify equivalency of 1100 ft^3 of 11,000 ppm boron per OP/0/A/1108/001 (Curves And General Information).
SR 3.3.1.1	RPS Instrumentation RP RCP/Flux Trip			Verify no Dummy Bistable installed. Verify no trips present. Verify status annunciators operable (lamp test).
SR 3.1.7.1	Position Indicator Channels PI Panel	cpw		Verify all Relative Rod Position indications agree within 5% of Absolute Rod Position indications. **IF NOT**, notify Duty Rx Engineer for evaluation of core parameters and recommended actions.
SR 3.4.4.1	RCS Loops			Verify required RCPs (3 or 4) in operation with RCS flow indicated.

Duke Energy Oconee Nuclear Station **Instrument Surveillance Prior To Mode Change**	Procedure No. **PT/1/A/0600/001 B**
	Revision No. **032**
Continuous Use	Electronic Reference No. **OP00964Z**

PERFORMANCE

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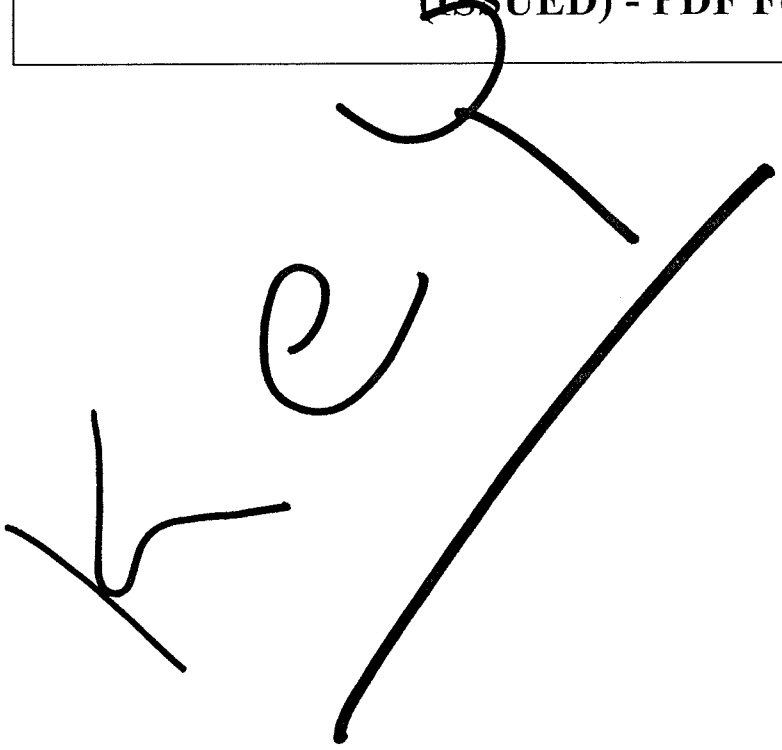

Instrument Surveillance Prior To Mode Change

1. Purpose

1.1 To verify proper operation of various instruments and systems prior to Mode change.

2. References

2.1 Technical Specifications (TS)

2.2 DPC/Oconee Nuclear Station Core Operating Limits Report (COLR)

2.3 UFSAR Chapter 16 Selected Licensee Commitments (SLC)

3. Time Required

3.1 30 minutes

4. Prerequisite Tests

None

5. Test Equipment

None

6. Limits And Precautions

6.1 PT/0/A/0600/001 A (Loss Of Computer) should be referred to upon a loss of computer or loss of a computer point or function needed for a surveillance.

6.2 When using Computer Points to perform a surveillance, the Computer Points MUST be used from a Computer Display Screen, which also indicates the Quality of the Computer Point.

- Computer Point Quality and Value MUST indicate as follows to be used for a surveillance:
  - GOOD with a Value that represents actual plant conditions
  - INHB with a Value that represents actual plant conditions
  - LALM with a Value that represents actual plant conditions
  - HALM with a Value that represents actual plant conditions
  - LOLO with a Value that represents actual plant conditions
  - HIHI with a Value that represents actual plant conditions
  - ALM with a Value that represents actual plant conditions.

7. Required Unit Status

7.1 Required Unit Mode stated in each enclosure.

8. Prerequisite System Conditions

None

9. Test Method

9.1 Component checks will be made according to information given in the applicable enclosures.

10. Data Required

10.1 Data requirements specified in applicable Enclosures.

11. Acceptance Criteria

11.1 Systems or components meet TS or SLC requirements applicable to surveillance step.

12. Procedure

12.1 Perform component checks prior to changing Modes within the required time frames using the appropriate enclosure.

12.2 Instrument operation may be checked either by reading appropriate recorder, gauge, etc., or by selecting computer point ID where applicable.

12.3 Dixson Indicators

12.3.1 Dixsons listed on Enclosure "Dixson Meter Information" are on an enhanced surveillance interval.

12.3.2 **IF** any Dixson listed on Enclosure "Dixson Meter Information" are found to be blinking with a reading of zero, no action is required unless a failure is suspected.

12.3.3 Dixsons **NOT** listed on Enclosure "Dixson Meter Information" are on a surveillance interval. These Dixsons have alternate methods of verifying input signal is valid.

13. Enclosures

13.1 Entering Mode 2 From Mode 1

13.2 Entering Mode 3 From Modes 1 & 2

13.3 Surveillances Prior To RCS ≤ 325°F

13.4 Entering Mode 4 From Mode 3

13.5 Entering Mode 5 From Mode 4

13.6 Entering Mode 6 From Mode 5

13.7 Surveillances Prior To Fuel Movement In RB

13.8 Entering No Mode From Mode 6

13.9 Entering Mode 6 From No Mode

13.10 Surveillances Prior To FTC Level < 21.34 ft Above Top Of RxV Flange

13.11 Surveillances Prior To RxV Head Installed

13.12 Entering Mode 5 From Mode 6

13.13 Surveillances Prior To Two DHR Loops **NOT** Operable

13.14 Surveillances Prior To Closing Any CRD Breakers With CRD System Capable Of Rod Withdrawal

13.15 Entering Mode 4 From Mode 5

13.16 Surveillances Prior To SGs Required For Heat Removal

13.17 Entering Mode 3 From Mode 4

13.18 Surveillances Prior To RCS > 325°F

13.19 Surveillances Prior To RCS > 350°F

13.20 Surveillances Prior To RCS ≥ 800 psig

13.21 Surveillances Prior To RCS ≥ 900 psig

13.22 Surveillances Prior To Main Steam Pressure ≥ 700 psig

13.23 Entering Modes 1 & 2 From Mode 3

13.24 Surveillances Prior To > 20% RTP

13.25 Surveillances Prior To > 40% RTP

13.26 Dixson Meter Information

Appendix

Enclosure 13.23

Entering Mode 1 & 2 From Mode 3

1. Initial Conditions

X 1.1 Unit is in Mode 3.

X 1.2 Review Limits And Precautions.

NOTE: SRs are only valid for ≤ 12 hours once enclosure is started. When > 12 hours from start time, a new enclosure is required.

X 1.3 Date and Time Enclosure started Today / 0700.

2. Procedure

2.1 Perform instrument checks as specified.

	COMPONENT	INITIALS	COMPUTER	REQUIRED CONDITIONS
SR 3.3.1.1	RPS Instrumentation RC Temperature T_H (A Loop)		O1A1692 O1A1693	Verify computer readouts agree within 3°F (If OAC unavailable, 5°F in RPS Cab). **IF** any of CR RCS temperature selectors are changed, notify Rx Engineering to evaluate and update Enclosure "Loop ΔT Vs. Reactor Power" of PT/1/A/0600/001 (Periodic Instrument Surveillance) for new selected inputs.
SR 3.3.1.1	RPS Instrumentation RC Temperature T_H (B Loop)	Signed off	O1A1694 O1A1695	Verify computer readouts agree within 3°F (If OAC unavailable, 5°F in RPS Cab). **IF** any of CR RCS temperature selectors are changed, notify Rx Engineering to evaluate and update Enclosure "Loop ΔT Vs. Reactor Power" of PT/1/A/0600/001 (Periodic Instrument Surveillance) for new selected inputs.
SR 3.3.1.1	RPS Instrumentation RC Flow	Signed off	O1A1549 O1A0877 O1A1420 O1A1712	Verify total flow agrees within 4800 klbm/hr **AND** Verify **NO** computer alarms for high flow present.
SR 3.1.6.1	APSR Alignment Limits	X	GD REG	Verify position of each APSR within 6.5% of group average.
SR 3.2.1.1	Regulating Rod Position Limits	X	GD REG	Verify regulating rod groups within sequence and overlap limits in COLR.
SR 3.2.1.2	Regulating Rod Position Limits	X	GD REG	Verify regulating rod groups within position limits on curve in COLR.

Enclosure 13.23

Entering Mode 1 & 2 From Mode 3

	COMPONENT	INITIALS	COMPUTER	REQUIRED CONDITIONS
SR 3.1.4.1	Control Rod Group Alignment Limits		GD REG GD SAFETY	Verify all Control Rods in each Group agree within ± 3.5% of group average. **IF** a Control Rod is > ± 3.5% of its Group average, refer to OP/1/A/1105/019 (Control Rod Drive System).
SR 3.1.5.1	Safety Rod Position Limits		GD SAFETY PI Panel	Verify each safety rod fully withdrawn.
SR 16.5.13.1	CBAST		O1E0161	Verify equivalency of 1100 ft^3 of 11,000 ppm boron per OP/0/A/1108/001 (Curves And General Information).
SR 3.3.1.1	RPS Instrumentation RP RCP/Flux Trip			Verify no Dummy Bistable installed. Verify no trips present. Verify status annunciators operable (lamp test).
SR 3.1.7.1	Position Indicator Channels PI Panel			Verify all Relative Rod Position indications agree within 5% of Absolute Rod Position indications. **IF NOT**, notify Duty Rx Engineer for evaluation of core parameters and recommended actions.
SR 3.4.4.1	RCS Loops	Signed off		Verify required RCPs (3 or 4) in operation with RCS flow indicated.

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Admin 113

RO ONLY

CALCULATE AN ESTIMATED CRITICAL ROD POSITION

CANDIDATE _____

EXAMINER _____

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Calculate an Estimated Critical Rod Position

Alternate Path:

No

Facility JPM #:

CRO-037

K/A Rating(s):

System: GEN
K/A: 2.1.19
Rating: 3.9/3.8

Task Standard:

Calculated inserted rod worth must agree within ± 5% wd of attached example.

Preferred Evaluation Location:

Simulator __X___ In-Plant _____

Preferred Evaluation Method:

Perform __X___ Simulate ____

References:

PT/1/A/1103/15 (Reactivity Balance Procedure), Encl. 13.4 (Computerized ECP Calculation)

Validation Time: 17 minutes **Time Critical:** NO

==========

Candidate: _____ Time Start: _____
NAME Time Finish: _____

Performance Rating: SAT _____ UNSAT _____ Performance Time: _____

Examiner: _____ _____/_____
NAME SIGNATURE DATE

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COMMENTS

SIMULATOR OPERATOR INSTRUCTIONS:

None

Tools/Equipment/Procedures Needed:

PT/1/A/1103/15 (Reactivity Balance Procedure), Encl. 13.4 (Computerized ECP Calculation)

READ TO OPERATOR

DIRECTION TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

Unit 1 operated from 1/15 – 4/3 at 100% power

4/3 1000 – Forced reactor shutdown is commenced at 10%/hr

EFPD = 127

Unit is NOT returning from a "Forced Outage"

PRESENT CONDITIONS:

4/10 1400 Unit #1 Startup in progress

RCS Boron = 1325

RCS Temperature = 532°F.

Group 8 positioned at 35% withdrawn

INITIATING CUES:

The Control Room SRO directs you to calculate an original estimated critical rod position for 3 hours from the present time per PT/1/A/1103/15, Reactivity Balance Procedure.

Print out the calculation once it is completed.

START TIME: _____

STEP 1: Step 2.1 This enclosure must be performed twice – the second is the separate verification. Circle whether this is the original or the verification. STANDARD: Candidate should circle "original" and N/A the bullet step. Continue to Step 2.2 COMMENTS:	___ SAT ___ UNSAT
CAUTION: **IF** the power history information from the last equilibrium Xe/Sm condition is **NOT** input into the code, significant error may result. STEP 2: Step 2.2 Obtain the power history back to the last time of Xenon equilibrium to perform the Xenon calculation from a source such as PI Server, OAC, RO Log, etc. Attach actual power history to this enclosure. STANDARD: The candidate will indicate that he will obtain a power history from one of the listed sources. ***Cue: Direct the candidate to obtain power history from the JPM initial conditions.*** Candidate indicates that he will attach the power history to this enclosure. **Cue: Consider the Candidate Cue sheet your power history and that it is attached as directed** Continue to Step 2.3 COMMENTS:	___ SAT ___ UNSAT

STEP 3: Step 2.3 Open RhoCalc. STANDARD: Candidate locates the RhoCalc icon on the PC and opens the program. ***Note: For the purposes of this JPM the RhoCalc program will already be open on the computer.*** Continue to Step 2.5 COMMENTS:	___ SAT ___ UNSAT
STEP 4: Step 2.4 INPUT appropriate data for the estimated critical rod position calculation, select "Calculate ECP", and print. STANDARD: Candidate inserts the data given to him into the program. • Name – Candidates name • *RCS Temperature - 532°F • *Current Boron Concentration – 1325 ppm • *EFPD - 127 • *Group 8 position – 35% withdrawn • *Power History: 4/3 @1000 - 100% 4/3 @2000 – 0% 4/10 @ 1700 – 0% *Unit 1 must be selected prior to running the calcualtion *The "Calculate ECP" button is pressed to run the calculation. Critical rod limits must agree within ± 5% of attached example. **NOTE: The Candidate must also select the desired unit. This may be done before or after entering the other data** ***Cue: If candidate attempts to open the HELP file on the top menu, provide the candidate with the hard copy of the HELP file that is attached.*** COMMENTS: **END TASK**	***CRITICAL STEP** ___ SAT ___ UNSAT

STOP TIME: _____

CRITICAL STEP EXPLANATIONS:

STEP #	Explanation
4	Step is necessary because the candidate needs to perform this step for the computer to calculate the ECP to determine the expected rod positions for criticality.

CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

Unit 1 operated from 1/15 – 4/3 at 100% power

4/3 1000 – Forced reactor shutdown is commenced at 10%/hr

EFPD = 127

Unit is NOT returning from a "Forced Outage"

PRESENT CONDITIONS:

4/10 1400 Unit #1 Startup in progress

RCS Boron = 1325

RCS Temperature = 532°F.

Group 8 positioned at 35% withdrawn

INITIATING CUES:

The Control Room SRO directs you to calculate an original estimated critical rod position for 3 hours from the present time per PT/1/A/1103/15, Reactivity Balance Procedure.

Print out the calculation once it is complete.

Duke Energy Oconee Nuclear Station **REACTIVITY BALANCE PROCEDURE (Unit 1)**	Procedure No. **PT/1/A/1103/015**
	Revision No. **067**
Continuous Use	Electronic Reference No. **OX002WBQ**

PERFORMANCE

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Key

Reactivity Balance Procedure

1. Purpose

1.1 To calculate the Boron concentration necessary to provide greater than 1% ΔK/K shutdown margin.

1.2 To calculate the actual shutdown margin when the reactor is shutdown.

1.3 To evaluate the available shutdown margin during power operation (e.g., in the event of an inoperable rod.)

1.4 To provide the minimum RCS Boron concentration required to ensure greater than 1% ΔK/K shutdown margin to perform the Control Rod Drive (CRD) patch verification (for initial startup following refueling).

1.5 To estimate the critical rod configuration or the critical Boron concentration prior to startup.

1.6 To provide a method for preventing inadvertent criticality using subcritical multiplication measurement.

1.7 To provide nominal APSR position.

1.8 To provide the Minimum RCS Boron Concentration to maintain SSF Operability

2. References

2.1 Technical Specifications: 1.1, Definitions - Shutdown Margin

3.1.1, Shutdown Margin

3.1.4, Control Rod Group Alignment Limits

3.1.5, Safety Rod Position Limits

3.2.1, Regulating Rod Position Limits

3.3.9, Source Range Neutron Flux

3.9.1, Boron Concentration

2.2 Selected Licensee Commitments: 16.13.4, Reactivity Anomaly

2.3 Unit 1 - Physics Test Manual (PTM), ONEI-0400-55

2.4 Unit 1 - Core Operating Limits Report (COLR), ONEI-0400-50

2.5 Nuclear Systems Directive 304, Reactivity Management

2.6 Work Process Manual, Section 2.5, Testing

3. Time Required

Two people - 1 hour for most enclosures

4. Prerequisite Tests

None

5. Test Equipment

Personal computer (for computerized calculations)

6. Limits and Precautions

6.1 The results of this procedure are used to make important operational decisions, therefore this procedure affects core reactivity. **(R.M.)**

6.2 Appropriate corrections have been made per this procedure, or actual plant conditions must be the same as the reference conditions stated on the appropriate enclosure(s). **(R.M.)**

6.3 Separate verification is required for each calculation performed. For hand calculations, this requires that two people separately complete the appropriate enclosures for the desired calculation to verify the results are in agreement. For computerized calculations, this requires that two people separately run the computer code(s) or verify the input. **(R.M.)**

6.4 **IF** the power history information from the last equilibrium Xe/Sm condition is **NOT** input into the code, significant error may result. **(R.M.)**

6.5 Per Technical Specification 3.1.5 all safety rods (groups 1-4) must be fully withdrawn prior to MODE 2 entry (Keff > 0.99, SDM < 1% ΔK/K). **(R.M.)**

7. Required Unit Status

None

8. Prerequisite System Conditions

None

9. Test Method

9.1 Shutdown Boron Concentration:

Calculated in Enclosure 13.1, Shutdown Boron Concentration/Shutdown Margin Calculation, or 13.2, Computerized Shutdown Margin Calculation.

The shutdown Boron concentration provides a greater than 1.0% ΔK/K shutdown margin with the worst case stuck rod assumed to be out.

A reference shutdown Boron concentration is obtained based on the cycle burnup, rod positions and RCS temperature. The reactivity worths of Xenon, Samarium, and the inoperable rod penalty (if applicable) are converted into their equivalent Boron concentrations. (Credit is taken only for the minimum Xenon worth occurring in a specified time interval, which should not exceed 13 hours. The Shutdown Boron concentration is valid only during that time interval. Due to uncertanities in the Xenon models, 0.8 times the Xenon and Samarium worth are used unless the RCS is below 450°F, in which case 0.5 times the Xenon and Samarium worths are used. Xenon and Samarium worths may be assumed to be zero for conservatism.) These Boron concentrations are then applied to the reference Boron concentration to provide the required Boron concentration for a greater than 1.0% ΔK/K shutdown margin (i.e., the shutdown Boron concentration).

9.2 Shutdown Margin Calculation while Shutdown:

Calculated in Enclosure 13.1, Shutdown Boron Concentration/Shutdown Margin Calculation or 13.2, Computerized Shutdown Margin Calculation.

The shutdown margin is the amount of reactivity by which the reactor is shutdown. The worst case stuck rod is assumed to be out. If operating with a known inoperable rod, an additional penalty is applied to account for that rod. This penalty need not be applied when the reactor is shutdown if that rod can be confirmed to be fully inserted by redundant indications. The shutdown Boron concentration must first be found per step 9.1. The actual Boron concentration is then subtracted from this concentration and the result converted to % ΔK/K. 1.0% ΔK/K is then subtracted from this value to obtain the shutdown margin, expressed in - % ΔK/K. A separate check for SSF RC Makeup System operability is performed, which takes credit for Xenon and requires the stuck rod penalty. This limit is shown in Enclosure 13.20, Minimum RCS Boron Concentration to Maintain SSF Operability.

Following a shutdown, Control Rod Position at the time of Shutdown may be used with the Rod Position Limit curves (in COLR) to verify at least 1% ΔK/K shutdown margin for the first 3 hours following shutdown (provided RCS Temperature stays ≥ 532°F and boron does not decrease). This may be necessary for shutdowns with an inoperable rod, since the more conservative calculation method (in Enclosure 13.1, Shutdown Boron Concentration/Shutdown Margin Calculation, and 13.2, Computerized Shutdown Margin Calculation) may not show 1% ΔK/K shutdown margin immediately after shutdown. Boration should begin immediately to be able to show 1% ΔK/K shutdown margin using the calculation method.

9.3 Shutdown Margin at Power:

Verified in Enclosure 13.18, Shutdown Margin Calculation at Power.

While at power, the available shutdown margin may be verified to be ≥ 1% ΔK/K by using the Rod Position Limits curves (in COLR). Operation in the "Acceptable Region" of these curves ensures that the shutdown margin following a reactor trip will be ≥ 1% ΔK/K with the worst stuck rod out. There are curves for 3 and 4 RCP operation, and curves for 0 and 1 inoperable rod. A dropped rod is considered inoperable for the purposes of providing shutdown margin while at power.

9.4 Estimated Critical Rod Position:

Calculated in Enclosure 13.4, Computerized Estimated Critical Rod Position Calculation.

The core excess reactivity is obtained based on the cycle burnup. The reactivity worths associated with Boron, Xenon, temperature correction (if RCS temperature not at 532°F) and Samarium are then obtained and summed with the core excess reactivity. The groups 5-7 positions are then determined for which the inserted rod worth when summed with all the above, yields a total core reactivity of 0.0% ΔK/K. The upper and lower rod position limits are then determined and the actual critical rod positions are recorded.

9.5 Estimated Critical Boron Concentration:

Calculated in Enclosure 13.5, Computerized Estimated Critical Boron Calculation.

The core excess reactivity is obtained based on the cycle burnup. The reactivity worth associated with Xenon, temperature correction (if RCS temperature not at 532°F), Samarium and the desired critical rod positions are summed with the core excess reactivity. The Boron concentration is then determined for which its reactivity worth, when summed with all the above, yields a total core reactivity of 0.0% ΔK/K.

9.6 Subcritical Multiplication Measurement:

Performed in 13.6, Computerized Subcritical Multiplication (1/M) Measurement.

With Group 1 at 50% wd, an initial source range (SR) count rate (C_o) is recorded. During control rod withdrawals, new counts (C) are recorded and used to calculate 1/M, or C_o/C. As criticality is approached, C/C_o will approach infinity, and 1/M will approach zero. Plotting 1/M versus rod worth provides a rough indication of what rod position will yield a critical condition, and acts as an indication of premature criticality, or criticality more than 0.75% ΔK/K below the Estimated Critical Position calculated in step 9.4.

10. Data Required

10.1 For Xenon Worth: Core EFPD and power history to time of last equilibrium xenon.

10.2 For Shutdown Boron Concentration/Shutdown Margin Calculation: Power History, Boron Concentration, RCS temperature, Core EFPD, Group 8 position, any inoperable rod penalty.

10.3 For Estimated Critical Rod Configuration: Boron Concentration, RCS temperature, Core EFPD, Group 8 Position, and power history.

10.4 For Estimated Critical Boron Configuration: RCS temperature, Core EFPD, desired critical rod configuration and power history.

10.5 For Subcritical Multiplication Measurement: ECP Control Rod position, time safety groups must be fully withdrawn, Unit, Cycle, Beginning of Cycle (Yes/No), EFPD, Graph Notify Lines (Yes/No), Xenon Free (Yes/No), and source range (SR) count rate.

11. Acceptance Criteria

11.1 Separate verifications for Shutdown Boron shall agree within 10 ppmB. The more conservative Shutdown Boron Concentration calculation shall be used to ensure at least a 1.0% ΔK/K shutdown margin.

11.2 Separate verifications for Estimated Critical Boron shall agree within 10 ppm.

11.3 Separate verifications for Estimated Critical Positions shall agree within 5% wd.

11.4 Acceptance criteria for 1/M approach to critical: Criticality is achieved within 0.75% Δk/k of the predicted critical rod position concentration.

11.5 Review criteria for 1/M approach to critical: Criticality achieved within 0.35%Δk/k of the predicted critical rod position for startups considered Xenon free, 0.5% Δk/k review criteria for non-Xenon free startups.

12. Procedure

Complete, or refer to, the appropriate enclosure(s):

Shutdown Margin Calculation while shutdown:
Enclosure 13.1, "Shutdown Boron Concentration/Shutdown Margin Calculation,"
or
Enclosure 13.2 "Computerized Shutdown Margin Calculation"

Estimated Critical Rod Position:
Enclosure 13.4, "Computerized Estimated Critical Rod Position Calculation"

Estimated Critical Boron Concentration:
Enclosure 13.5, "Computerized Estimated Critical Boron Calculation"

Computerized Subcritical Multiplication (1/M) Measurement:
Enclosure 13.6, "Computerized Subcritical Multiplication (1/M) Measurement"

Refueling Outage Boron Concentrations:
Enclosure 13.13, "Refueling Outage Boron Concentrations"

Required Control Rod Group 8 Position:
Enclosure 13.14, "Required Group 8 Position and Designed Cycle Length"

Designed Cycle Length Information:
Enclosure 13.14, "Required Group 8 Position and Designed Cycle Length"

Required Shutdown Margin:
Enclosure 13.16, "Shutdown Margin Requirements"

Shutdown Margin Calculation at power:
Enclosure 13.18, "Shutdown Margin Calculation at Power"

RCS Boron Concentration for SSF Operability:
Enclosure 13.20, "Minimum RCS Boron Concentration to Maintain SSF Operability"

NOTE: Only the appropriate completed enclosures need be attached to the procedure cover sheet to be submitted for procedure completion.

13. Enclosures

13.1 Shutdown Boron Concentration/Shutdown Margin Calculation

13.2 Computerized Shutdown Margin Calculation

13.3 Computerized Shutdown Margin Calculation Documentation

13.4 Computerized Estimated Critical Rod Position Calculation

13.5 Computerized Estimated Critical Boron Calculation

13.6 Computerized Subcritical Multiplication (1/M) Measurement

13.7 Core Excess Reactivity vs. Burnup

13.8 Differential Boron Worth vs. Burnup

13.9 Temperature Coefficient vs. RCS Boron Concentration

13.10 Shutdown Boron Concentration vs. Burnup (Group 1 @ 0% wd)

13.11 Shutdown Boron Concentration vs. Burnup (Group 1 @ 50% wd)

13.12 Inoperable Rod Penalty for Individual Inoperable Rod

13.13 Refueling Outage Boron Concentrations

13.14 Required Group 8 Position and Designed Cycle Length

13.15 Power Defect vs. Reactor Power

13.16 Shutdown Margin Requirements

13.17 Control Rod Group Worths for Control Rod Drop Time Testing

13.18 Shutdown Margin Calculation at Power

13.19 Group 7 Control Rod Worth

13.20 Minimum RCS Boron Concentration to Maintain SSF Operability

Computerized Estimated Critical Rod Position Calculation

1. Purpose

The purpose of this enclosure is to calculate an estimated critical rod position to be used during unit start up.

2. Procedure

Calculation Performed by: Name

Signed off 2.1 This enclosure must be performed twice - the second is the separate verification. Circle whether this is the original or the verification:

(Original) Must be performed by a Licensed Operator (N/A next bullet step)

Separate Verification - Must be performed by a Qualified Reactor Engineer (N/A steps 2.8-2.13 for Separate Verification)

NOTE: The only acceptance criterion is that measured RCS % design flow is greater than that required. RPS flows can be expected to deviate from baseline.

CPN/A • **IF** returning from a forced outage perform an RCS flow check using POWCALC.XLS **AND** attach results to this enclosure.

CAUTION: **IF** the power history information from the last equilibrium Xe/Sm condition is **NOT** input into the code, significant error may result.

NOTE: **IF** conducting an initial cycle startup the power history is 0% F. P.

CPN/A 2.2 **IF** returning from a forced shutdown:

2.2.1 Obtain the power history back to the last time of Xenon Equilibrium to perform the Xenon calculation from a source such as PI server, OAC Log, RO Log, etc.

2.2.2 Attach actual power history (from OAC log, TMS, PI Server, etc.) to this enclosure.

Signed off 2.3 Open RhoCalc.

NOTE:

1. EFPD input into the code shall correspond to the "beginning of the power history", **NOT** the EFPD at the "effective time of calculation".
2. When choosing the input Boron concentration during transient Xenon conditions sufficient time must be factored in to allow for changes to be made to the RCS and PZR Boron concentration, samples to be taken, the time required to pull Groups 1 - 4 to 100% wd, and any other time constraints noted by the OCC.
3. The ECP time shall run sufficiently into the future to determine if MODE 2 entry could occur with Group 5 < 0%. This time of occurrence is required in step 2.7
4. Estimated conditions (i.e. RCS Boron/Temperature) at the time of criticality may be used.

signed off 2.4 Input appropriate data for the estimated critical rod position calculation, select "Calculate ECP", and print.

End of task

_____ 2.5 Circle the appropriate response:

Were estimated conditions used for the ECP? Yes/No

_____ 2.6 Verify Separate Verifications agree on the ECP within 5%wd for all future time steps that have an ECP prediction.

CAUTION:

1. All safety Rods (Groups 1-4) must be fully withdrawn prior to the time that "Rod Posn @ Mode 2 Entry" (T.S. 3.1.5) column reaches Group 5 < 0%. T. S. 3.1.5 prohibits entering Mode 2 (Keff > 0.99, SDM <1% dK/K) on the Safeties. **IF** Groups 1 - 4 can **NOT** be fully withdrawn prior to the "Rod Posn @ Mode 2 Entry" (T.S. 3.1.5) column indicating 5 < 0%, any in-progress approach to critical must be aborted **AND** the RCS borated sufficiently to meet T.S. 3.1.5 requirements.

2. **IF** the RCS is sufficiently borated to account for Xe decay to Xe free conditions, Step 2.7.2 may be N/A'ed because the T.S. 3.1.5 limit will **NOT** be reached **AND** Mode 2 (Keff > 0.99, SDM <1% dK/K) will **NOT** be entered on the Safeties.

_____ 2.7 Complete one of the following steps:

_____ 2.7.1 Verify that the RCS is sufficiently borated to account for Xe decay such that entry into T.S. 3.1.5 will **NOT** occur.

OR

_____ 2.7.2 Document the time/date of the time step immediately prior to the first occurrence of "5 < 0%" in the "Rod Posn @ Mode 2 Entry" (T.S. 3.1.5) column of the ECP printout.

Time at which the safety rods must be fully withdrawn:

_____ hours on _____(date).

_____ 2.8 Discuss the results of ECP with the Control Room SRO. (N/A this step on separate verification calculation).

_____Control Room SRO

_____ 2.9 Attach results of ECP to the procedure and turn the package over to the Control Room SRO. (N/A this step on separate verification calculation).

_____ 2.10 Fill in the actual critical rod configuration and notification limit check on the computer printout. (N/A this step on separate verification calculation).

NOTE: The notification lines of 1/M.xls spreadsheet are the review and acceptance criteria of 11.4 and 11.5. **IF** these criteria are **NOT** met see the WPM section 2.5, Testing, Approach to Critical Rod Position.

_____ 2.11 Verify actual critical conditions are within 1/M.xls notification lines. (N/A this step on separate verification calculation.)

NOTE:	The Reactor Engineering mail code is ON03CV.

_____ 2.12 Forward the completed ECP, including all applicable enclosures and attachments, to Reactor Engineering. (N/A this step on the separate verification calculation.)

NOTE:	The GO Nuclear Design Group requires the "Procedure Completion Approved" blank to be signed off prior to transmittal.

_____ 2.13 Transmit copy of completed ECP to GO Nuclear Design. (N/A this step on separate verification calculation.)

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Admin 117

SRO ONLY

Evaluate SSF-ASW operability based on Pressurizer Relief Valve leakage

CANDIDATE _____

EXAMINER _____

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Evaluate SSF-ASW operability based on Pressurizer Relief Valve leakage

Alternate Path:

No

Facility JPM #:

NEW

K/A Rating(s):

System: GEN
K/A: 2.1.7
Rating: 4.4/4.7

Task Standard:

Perform PT/2/A/0610/001 (Reactor Coolant Leakage) Attach. 13.5 (Pzr Relief Valve Leakage Calculation) and determine that the SSF Aux Service Water System is inoperable.

Preferred Evaluation Location:

Simulator __X___ In-Plant _____

Preferred Evaluation Method:

Perform __X___ Simulate ____

References:

PT/2/A/0610/001 (Reactor Coolant Leakage) Attach. 13.5 (Pzr Relief Valve Leakage Calculation)

Validation Time: 15 minutes **Time Critical:** NO

==========

Candidate: _____ Time Start: _____
NAME Time Finish: _____

Performance Rating: SAT _____ UNSAT _____ Performance Time: _____

Examiner: _____ _____/_____
NAME SIGNATURE DATE

==========

COMMENTS

SIMULATOR OPERATOR INSTRUCTIONS:

None

Tools/Equipment/Procedures Needed:

PT/2/A/0610/001 (Reactor Coolant Leakage) Attachment 13.5 (Pzr Relief Valve Leakage Calculation)

READ TO OPERATOR

DIRECTION TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

PT/2/A/0610/001 (Reactor Coolant Leakage) is in progress

Pzr Relief Valve leakage exists

Autolog is NOT available

Unit 2 Pzr Steam Space Leakage Excel Calculation NOT available

PT/2/A/0610/001 (Reactor Coolant Leakage) Attachment 13.5 (Pzr Relief Valve Leakage Calculation) has been completed up to step 5.6.

INITIATING CUES:

The Operation Shift Manger directs you to complete Attachment 13.5 (Pzr Relief Valve Leakage Calculation) and determine SSF ASW Pump operability. Begin at Step 5.6.

Refer to attached data sheet

START TIME: _____

STEP 1: Step 5.6 and 5.7 Perform the following to obtain the Pzr Relief valve Leak Rate… STANDARD: Candidate will perform calculation and determine that Pzr Steam Space Leakage = **0.18 gpm** **(0.16 – 0.20)** **Note: Refer to attached key.** Continue to Step 5.8 COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT
STEP 2: Step 5.8 Determine SSF ASW Pump operability: • Refer to Autolog or contact I&E to determine operable SSF Pzr Heaters. • Refer to TS Bases 3.10.1 to determine required Pzr heaters/Pzr leakage. STANDARD: Determine that Autolog is NOT available and refer to the data sheet to determine that **16** heaters are operable. Refer to TS Bases 3.10.1 (SSF) page 7. Determine that for Unit 2 and 16 heaters the maximum allowed Pzr Steam Space Leakage is 0.10 gpm. The calculated Pzr Steam Space Leakage is 0.18 gpm and hence the SSF ASW Pump is **NOT** operable. Continue to Step 5.9 COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT

STEP 3: Step 5.9 **IF** SSF ASW System is inoperable due to excessive steam space leakage, perform the following: ▪ Enter TS 3.10.1 Condition 'A' for SSF ASW System inoperability. ▪ **IF** required, notify SPOC to restore Pzr Heaters per IP/0/B/0200/037 (Pressurizer Heater Test and Surveillance). STANDARD: *Determine that TS 3.10.1 Condition 'A' for SSF ASW System inoperability must be entered and SSF ASW must be returned to service within 7 days. SPOC notify SPOC to restore Pzr Heaters per IP/0/B/0200/037 (Pressurizer Heater Test and Surveillance). System Duty Engineer is notified. Continue to Step 5.10 COMMENTS:	***CRITICAL STEP** ___ SAT ___ UNSAT
STEP 4: Step 5.10 STANDARD: Record Unit 2 Pzr Steam Space Leakage in Autolog. **Cue: State that when Autolog is returned to service that the Unit 2 Pzr Steam Space Leakage would be recorded in Autolog.** COMMENTS: **END TASK**	___ SAT ___ UNSAT

STOP TIME: _____

DATA SHEET

QT Trend

Initial QT level = 80.0 inches

Final QT Level = 80.7 inches

Time = 60 minutes

SSF Pzr Heater

Per I&E, number of Bank 2, Group B & C Pressurizer Heaters available = 16

CRITICAL STEP EXPLANATIONS:

STEP #	Explanation
1	Calculation required to determine SSF ASW Pump operability
2	Step is necessary because the candidate needs to perform this step to determine that the SSF Aux Service Water pump is NOT operable.
3	Determining when SSF ASWP must be restored to OPERABLE

CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

PT/2/A/0610/001 (Reactor Coolant Leakage) is in progress

Pzr Relief Valve leakage exists

Autolog is NOT available

Unit 2 Pzr Steam Space Leakage Excel Calculation NOT available

PT/2/A/0610/001 (Reactor Coolant Leakage) Attachment 13.5 (Pzr Relief Valve Leakage Calculation) has been completed up to step 5.6.

INITIATING CUES:

The Operation Shift Manger directs you to complete Attachment 13.5 (Pzr Relief Valve Leakage Calculation) and determine SSF ASW Pump operability. Begin at Step 5.6.

Refer to attached data sheet

1. Initial Conditions

CPW 1.1 Verify RCS Temperature **AND** Pressure stable. {17}

2. Procedure {3}

2.1 **IF** any RCP Seal Leakage Flow indicator is out of service, perform the following:

N/A CPW 2.1.1 Notify Systems Engineering.

_____ _____
Person Notified Date

____ 2.1.2 N/A remainder of this enclosure.

CPW 2.2 Ensure weekly pressurizer boron sample has been requested. {14}

NOTE:	Pzr Steam Space Leakage Excel Calculation available on OPS Web Page.

N/A CPW 2.3 **IF** Unit 2 Pzr Steam Space Leakage Excel Calculation available, perform Section 3 (Unit 2 Pzr Steam Space Leakage Excel Calculation available).

2.4 **IF** Unit 2 Pzr Steam Space Leakage Excel Calculation **NOT** available, perform the following:

CPW 2.4.1 Refer to Section 4 (Example Of RCP Seal Leakage Flow Trend History).

____ 2.4.2 Perform Section 5 (Unit 2 Pzr Steam Space Leakage Excel Calculation **NOT** Available).

3. Unit 2 Pzr Steam Space Leakage Excel Calculation available

_____ 3.1 Use Unit 2 Pzr Steam Space Leakage Excel Calculation to determine leakage:

Unit 2 Pzr Steam Space Leakage = _____ gpm

3.2 Perform the following to determine SSF ASW System operability: {11}

_____ • Refer to Autolog or contact I&E to determine operable SSF Pzr Heaters.

_____ • Refer to TS Bases 3.10.1 to determine required Pzr heaters/Pzr leakage.

3.3 **IF** SSF ASW System is inoperable due to excessive steam space leakage, perform the following:

_____ 3.3.1 Enter TS 3.10.1 Condition 'A' for SSF ASW System inoperability.

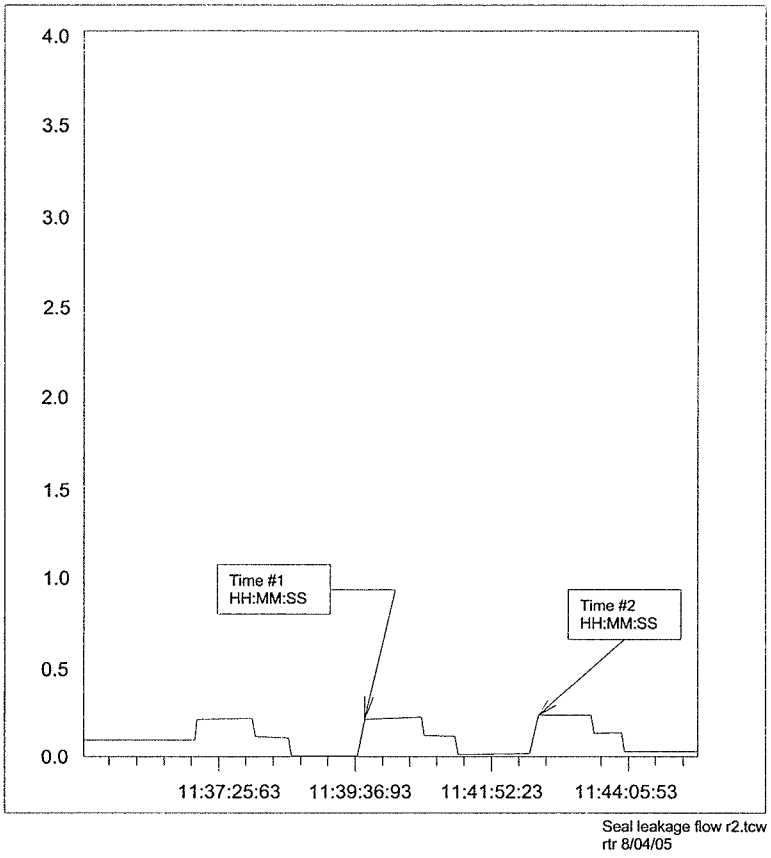
_____ 3.3.2 **IF** required, notify SPOC to restore Pzr Heaters per IP/0/B/0200/037 (Pressurizer Heater Test and Surveillance).

_____ 3.3.3 Notify System Duty Engineer.

_____ 3.4 Record Unit 2 Pzr Steam Space Leakage in Autolog.

4. Example Of RCP Seal Leakage Flow Trend History

** HISTORY ** GROUP TREND ** HISTORY **



RCP SEAL LEAKAGE FLOW

5. Unit 2 Pzr Steam Space Leakage Excel Calculation NOT available {15}

5.1 Perform **one** of the following to obtain 2A1 RCP Seal Leakage Flow:

N/A • **IF** 2A1 RCP Seal Leakage Flow (CP O2A1938) ≥ 0.30 gpm, record indicated value below and in Step 5.5:

2A1 RCP Seal Leakage Flow: _____ gpm

N/A • **IF** 2A1 RCP Seal Leakage Flow (CP O2A1938) < 0.30 gpm **AND** Time Trend/History for 2A1 RCP Seal Leakage Flow (CP O2A1938) indicates < 2 dumps in the past hour, record 0.0 gpm for 2A1 RCP Seal Leakage Flow in Step 5.5:

2A1 RCP Seal Leakage Flow: **0.0** gpm

- **IF** 2A1 RCP Seal Leakage Flow (CP O2A1938) < 0.30 gpm **AND** Time Trend/History for 2A1 RCP Seal Leakage Flow (CP O2A1938) indicates ≥ 2 dumps in the past hour, perform the following:

A. Calculate flow rate using Time Trend/History:

1. Record Time #1 2A1 RCP Seal Leakage Flow (CP O2A1938):

04:00:00
HH:MM:SS

2. Record Time #2 2A1 RCP Seal Leakage Flow: (CP O2A1938):

04:29:00
HH:MM:SS

3. Record Time #1 to Time #2 Duration: 1740 seconds

4. Calculate 2A1 RCP Seal Leakage Flow:

(0.29 ÷ 1740 sec) (60) = 0.01 gpm
(Duration) *(2A1 RCP Seal Leakage Flow)*

B. Record indicated value below and in Step 5.5:

2A1 RCP Seal Leakage Flow: 0.01 gpm

5.2 Perform **one** of the following to obtain 2A2 RCP Seal Leakage Flow:

N/A

- **IF** 2A2 RCP Seal Leakage Flow (CP O2A1940) ≥ 0.30 gpm, record indicated value below and in Step 5.5:

  2A2 RCP Seal Leakage Flow: _____ gpm

N/A

- **IF** 2A2 RCP Seal Leakage Flow (CP O2A1940) < 0.30 gpm **AND** Time Trend/History for 2A2 RCP Seal Leakage Flow (CP O2A1940) indicates < 2 dumps in the past hour, record 0.0 gpm for 2A2 RCP Seal Leakage Flow in Step 5.5:

  2A2 RCP Seal Leakage Flow: **0.0** gpm

- **IF** 2A2 RCP Seal Leakage Flow (CP O2A1940) < 0.30 gpm **AND** Time Trend/History for 2A2 RCP Seal Leakage Flow (CP O2A1940) indicates ≥ 2 dumps in the past hour, perform the following:

  A. Calculate flow rate using Time Trend/History:

  1. Record Time #1 2A2 RCP Seal Leakage Flow (CP O2A1940):

     04:00:00
     HH:MM:SS

  2. Record Time #2 2A2 RCP Seal Leakage Flow: (CP O2A1940):

     04:01:49
     HH:MM:SS

  3. Record Time #1 to Time #2 Duration: 109 seconds

  4. Calculate 2A2 RCP Seal Leakage Flow:

     (0.29 ÷ 109 sec) (60) = 0.16 gpm
     (Duration) *(2A2 RCP Seal Leakage Flow)*

  B. Record indicated value below and in Step 5.5:

     2A2 RCP Seal Leakage Flow: 0.16 gpm

5.3 Perform **one** of the following to obtain 2B1 RCP Seal Leakage Flow:

N/A. **IF** 2B1 RCP Seal Leakage Flow (CP O2A1939) ≥ 0.30 gpm, record indicated value below and in Step 5.5:

2B1 RCP Seal Leakage Flow: _____ gpm

N/A **IF** 2B1 RCP Seal Leakage Flow (CP O2A1939) < 0.30 gpm **AND** Time Trend/History for 2B1 RCP Seal Leakage Flow (CP O2A1939) indicates < 2 dumps in the past hour, record 0.0 gpm for 2B1 RCP Seal Leakage Flow in Step 5.5:

2B1 RCP Seal Leakage Flow: **0.0** gpm

- **IF** 2B1 RCP Seal Leakage Flow (CP O2A1939) < 0.30 gpm **AND** Time Trend/History for 2B1 RCP Seal Leakage Flow (CP O2A1939) indicates ≥ 2 dumps in the past hour, perform the following:

  A. Calculate flow rate using Time Trend/History:

  1. Record Time #1 2B1 RCP Seal Leakage Flow (CP O2A1939):

     04:00:00
     HH:MM:SS

  2. Record Time #2 2B1 RCP Seal Leakage Flow: (CP O2A1939):

     04:14:30
     HH:MM:SS

  3. Record Time #1 to Time #2 Duration: 870 seconds

  4. Calculate 2B1 RCP Seal Leakage Flow:

     (0.29 ÷ 870 sec) (60) = 0.02 gpm
     (Duration) *(2B1 RCP Seal Leakage Flow)*

  B. Record indicated value below and in Step 5.5:

     2B1 RCP Seal Leakage Flow: 0.02 gpm

5.4 Perform **one** of the following to obtain 2B2 RCP Seal Leakage Flow:

N/A • **IF** 2B2 RCP Seal Leakage Flow (CP O2A1941) ≥ 0.30 gpm, record indicated value below and in Step 5.5:

2B2 RCP Seal Leakage Flow: _____ gpm

N/A • **IF** 2B2 RCP Seal Leakage Flow (CP O2A1941) < 0.30 gpm **AND** Time Trend/History for 2B2 RCP Seal Leakage Flow (CP O2A1941) indicates < 2 dumps in the past hour, record 0.0 gpm for 2B2 RCP Seal Leakage Flow in Step 5.5:

2B2 RCP Seal Leakage Flow: **0.0** gpm

• **IF** 2B2 RCP Seal Leakage Flow (CP O2A1941) < 0.30 gpm **AND** Time Trend/History for 2B2 RCP Seal Leakage Flow (CP O2A1941) indicates ≥ 2 dumps in the past hour, perform the following:

A. Calculate flow rate using Time Trend/History:

1. Record Time #1 2B2 RCP Seal Leakage Flow (CP O2A1941):

_____
HH:MM:SS

2. Record Time #2 2B2 RCP Seal Leakage Flow: (CP O2A1941):

_____
HH:MM:SS

3. Record Time #1 to Time #2 Duration: 435 seconds

4. Calculate 2B2 RCP Seal Leakage Flow:

(0.29 ÷ 435 sec) (60) = 0.04 gpm
(Duration) *(2B2 RCP Seal Leakage Flow)*

B. Record indicated value below and in Step 5.5:

2B2 RCP Seal Leakage Flow: 0.04 gpm

SV 5.5 Sum individual RCP Seal Leakage Flows to determine Total RCP Seal Leakage Flow:

2A1 RCP Seal Leakage Flow: 0.01 gpm

2A2 RCP Seal Leakage Flow: 0.16 gpm

2B1 RCP Seal Leakage Flow: 0.02 gpm

2B2 RCP Seal Leakage Flow: 0.04 gpm

Total RCP Seal Leakage Flow: 0.23 gpm

5.6 Perform the following to obtain Pzr Relief Valve Leak Rate:

_____ 5.6.1 Determine Quench Tank (QT) level change:

_____ - _____ = _____
(Final QT level) *(Initial QT level)* *(QT level Change)*

_____ 5.6.2 Convert QT Level Change to gallons: {4}

_____ inches x 34.94 gals/inch = _____ gals
(QT Level Change) *(QT Volume Change)*

_____ 5.6.3 Calculate QT Volume Change Rate:

_____ gals ÷ _____ min = _____ gpm
(QT Volume Change) *(Duration)* *(QT Volume Rate)*

_____ 5.7 Calculate Pzr Steam Space Leakage:

_____ gpm - _____ gpm = _____ gpm
(QT Volume Rate) *(Total RCP Seal Leakage Flow)* *(Pzr Steam Space leakage)*

5.8 Determine SSF ASW Pump operability: {11}

_____ • Refer to Autolog or contact I&E to determine operable SSF Pzr Heaters.

_____ • Refer to TS Bases 3.10.1 to determine required Pzr heaters/Pzr leakage.

5.9 **IF** SSF ASW System is inoperable due to excessive steam space leakage, perform the following:

_____ • Enter TS 3.10.1 Condition 'A' for SSF ASW System inoperability.

_____ • **IF** required, notify SPOC to restore Pzr Heaters per IP/0/B/0200/037 (Pressurizer Heater Test and Surveillance).

_____ • Notify System Duty Engineer.

_____ 5.10 Record Unit 2 Pzr Steam Space Leakage in Autolog.

KEY

5.5 Sum individual RCP Seal Leakage Flows to determine Total RCP Seal Leakage Flow:

2A1 RCP Seal Leakage Flow: 0.01 gpm

2A2 RCP Seal Leakage Flow: 0.16 gpm

2B1 RCP Seal Leakage Flow: 0.02 gpm

2B2 RCP Seal Leakage Flow: 0.04 gpm

Total RCP Seal Leakage Flow: 0.23 gpm

5.6 Perform the following to obtain Pzr Relief Valve Leak Rate:

5.6.1 Determine Quench Tank (QT) level change:

80.7 (*Final QT level*) - 80.0 (*Initial QT level*) = 0.7 (*QT level Change*)

5.6.2 Convert QT Level Change to gallons: {4}

0.7 (*QT Level Change*) inches x 34.94 gals/inch = 24.458 (*QT Volume Change*) gals

5.6.3 Calculate QT Volume Change Rate:

24.458 (*QT Volume Change*) gals ÷ 60 (*Duration*) min = 0.41 (*QT Volume Rate*) gpm

5.7 Calculate Pzr Steam Space Leakage:

0.41 (*QT Volume Rate*) gpm - 0.23 (*Total RCP Seal Leakage Flow*) gpm = 0.18 (*Pzr Steam Space leakage*) gpm

5.8 Determine SSF ASW Pump operability: {11}

____ • Refer to Autolog or contact I&E to determine operable SSF Pzr Heaters.

____ • Refer to TS Bases 3.10.1 to determine required Pzr heaters/Pzr leakage.

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Admin-203

SRO ONLY

Complete Plant Configuration Sheet
(Time to Core Boil)

CANDIDATE _____

EXAMINER _____

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Complete Plant Configuration Sheet (Time to Core Boil)

Alternate Path:

No

Facility JPM #:

Admin 203

K/A Rating(s):

System: GEN
K/A: 2.2.18
Rating: 2.6/3.9

Task Standard:

Tables in OP/0/A/1108/001 are used to determine Total Loss Of DHR Time to Boil

Preferred Evaluation Location:

Simulator __X___ In-Plant _____

Preferred Evaluation Method:

Perform __X___ Simulate ____

References:

OP/0/A/1108/001 (Curves and General Information) Enclosure 4.46 (Total Loss of DHR Time to Boil)

Validation Time: 11 minutes **Time Critical:** NO

==========

Candidate: _____ Time Start: _____
NAME Time Finish: _____

Performance Rating: SAT _____ UNSAT _____ Performance Time: _____

Examiner: _____ _____/_____
NAME SIGNATURE DATE

==========

COMMENTS

SIMULATOR OPERATOR INSTRUCTIONS:

NONE

Tools/Equipment/Procedures Needed:

OP/0/A/1108/001 (Curves and General Information) Enclosure 4.46 (Total Loss of DHR Time to Boil)

READ TO OPERATOR

DIRECTION TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

- Unit 1 was shutdown on12/01 0400
- Site Directive 1.3.5 (Shutdown Protection Plan) Attachment 9.2.A is being prepared for this shift.

INITIATING CUES:

Current Date/Time: 12/04 0600

The SRO instructs you to calculate the "Time To Core Boil" and perform any required actions based on the calculation results in accordance with Site Directive 1.3.5 (Shutdown Protection Plan) Attachment 9.2.A.

START TIME: _____

STEP 1: Refer to enclosure 4.46 of OP/0/A/1108/001 Choose the appropriate table STANDARD: Refer to enclosure 4.46 of OP/0/A/1108/001 and use the "Prior to Refueling - Initial Temp = 110°F (Hours Since S/D); Time to Boil in Minutes" table. COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT
STEP 2: Determine the number of hours the reactor has been shutdown. STANDARD: Determine the reactor has been shut down for 74 Hours. COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT
STEP 3: Determine time to boil. STANDARD: Determine time to boil is **20.9 minutes** by using 74 hours and 80 inches on LT-5. COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT
STEP 4: Ensure SPOC is manning equipment hatch STANDARD: Ensures SPOC is manning equipment hatch since Configuration Sheet indicates that Equipment Hatch is Open COMMENTS: **END TASK**	___ SAT ___ UNSAT

STOP TIME: _____

CRITICAL STEP EXPLANATIONS:

STEP #	Explanation
1	Required to determine the time for core boil.
2	Required to determine the time for core boil.
3	Required to determine the time for core boil.

CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

- Unit 1 was shutdown on12/01 0400
- Site Directive 1.3.5 (Shutdown Protection Plan) Attachment 9.3.A is being prepared for this shift.

INITIATING CUES:

Current Date/Time: 12/04 0600

The SRO instructs you to calculate the "Time To Core Boil" and perform any required actions based on the calculation results in accordance with Site Directive 1.3.5 (Shutdown Protection Plan) Attachment 9.2.A.

Attachment 9.2.A - Plant Configuration Sheet

Unit 1 **Mode:** 6 **Preparer:** _____ **Date:** TODAY **Time:** 4:00

Reviewer: _____ **Date:** _____ **Time:** _____

RCS Level:	80 in.	As Read On:	LT-5		RCS Temperature:	110 °F	As Read On:	LPIP Suction	
RCS Level Control Band:	84 in. (High)	62 in. (Low)			RCS Temperature Band:	125 °F (High)	90 °F (Low)		
LPI Pumps Operable:	A ☑	B ☑	C ☑		LPSW Pumps Operable	A ☑	B ☑	C ☑	
LPI Pumps Coolers:	A ☑	B ☑			LPSW Suction From Unit:	2	CCW		
SF Pumps Operable:	A ☑	B ☑	C ☑		RCW Pumps Available:	A ☑	B ☑	C ☑	D ☑
SF Coolers Operable:	A ☑	B ☑	C ☑		RCW Coolers Available	A ☑	B ☑	C ☑	D ☑
SFP Level:	0.18 ft.				SFP Temperature	71 °F			
Level Control Band:	-2 ft.	To	1 ft.		Time For SFP Temperature to Reach 210 °F:	>66 hours			
FTC Flooded	YES ☐	NO ☑			Reactor Vessel Head	OFF ☐	ON ☑		
Fuel in Reactor Vessel	YES ☑	NO ☐			LP-19 Sump Path Available (Flange off w/ No Red Tags on LP-19)	YES ☑	NO ☐		
Operable CETCs	SOME	List:	G6, F7, F8, H9, G11		LP-20 Sump Path Available (Flange off w/ No Red Tags on LP-20)	YES ☐	NO ☑		
Time To Core Boil	_____ Minutes				Reactor Bldg Purge is:	OFF ☑	ON ☐		
If Time to Core Boil is ≤ 16 min. ensure equipment hatch is closed.					Equipment Hatch is:	CLOSED ☐	OPEN ☑		
If Time to Core Boil is < 30 min. ensure SPOC is manning equip. hatch if open.					SPOC is manning Equip. Hatch:	YES ☐	NO ☐		

RCS Makeup Paths								
☑ BHUT --> HP-363 --> A / B LPI	A BHUT 57,071 GAL.				**A OTSG**		**B OTSG**	
☑ BWST --> A / B LPI (Forced / Gravity)	BWST 377,146 GAL.			Upper Primary Handholes	ON ☑	OFF ☐	ON ☑	OFF ☐
☑ BWST / BHUT --> A HPI --> HP-410	CBAST 4,770 GAL.			Upper Primary Manways	ON ☑	OFF ☐	ON ☑	OFF ☐
☐ BWST / BHUT --> B HPI --> HP-409				OTSG Nozzle Dam Installed	YES ☐	NO ☐	YES ☐	NO ☑
RCS Boron:	2750 (Actual)	675 (Required)		Cold Legs Are:	DRAINED ☐		NOT DRAINED ☑	
Canal Seal Plate:	ON ☑	OFF ☐		SF-1	OPEN ☐		CLOSED ☑	
Transfer Tube Covers	ON ☑	OFF ☐		SF-2	OPEN ☐		CLOSED ☑	

OFFSITE POWER SOURCES					
CT-1 ☐ CT-2 ☐ CT-3 ☐	Main Feeder Bus # 1 Energized	YES ☑	NO ☐		
BACKCHARGED MAIN TRANSFORMER ☑	Main Feeder Bus # 2 Energized	YES ☑	NO ☐		
CT-5 (From Central Switchyard) ☑					
EMERGENCY POWER SOURCES					
CT-1 ☑ CT-2 ☐ CT-3 ☐	RC-66 Installed on PZR	YES ☐	NO ☑		
CT-4 ☑	RC-67 Installed on PZR	YES ☐	NO ☑		
CT-5 (From Lee Combustion Turbine via Isolated Power Path) ☐	RC-68 Installed on PZR	YES ☐	NO ☑		

NOTES: _____

Attachment 9.2.A - Plant Configuration Sheet

Unit 1 **Mode:** 6 **Preparer:** _____ **Date:** TODAY **Time:** 4:00

Reviewer: _____ **Date:** _____ **Time:** _____

RCS Level:	80 in.	As Read On:	LT-5		RCS Temperature:	110 °F	As Read On:	LPIP Suction	
RCS Level Control Band:	84 in. (High)	62 in. (Low)			RCS Temperature Band:	125 °F (High)	90 °F (Low)		
LPI Pumps Operable:	A ☑	B ☑	C ☑		LPSW Pumps Operable	A ☑	B ☑	C ☑	
LPI Pumps Coolers:	A ☑	B ☑			LPSW Suction From Unit:	2	CCW		
SF Pumps Operable:	A ☑	B ☑	C ☑		RCW Pumps Available:	A ☑	B ☑	C ☑	D ☑
SF Coolers Operable:	A ☑	B ☑	C ☑		RCW Coolers Available	A ☑	B ☑	C ☑	D ☑
SFP Level:	0.18 ft.				SFP Temperature	71 °F			
Level Control Band:	-2 ft.	To	1 ft.		Time For SFP Temperature to Reach 210 °F:	>66	hours		
FTC Flooded	YES ☐	NO ☑			Reactor Vessel Head	OFF ☐	ON ☑		
Fuel in Reactor Vessel	YES ☑	NO ☐			LP-19 Sump Path Available (Flange off w/ No Red Tags on LP-19)	YES ☑	NO ☐		
Operable CETCs	SOME	List:	G6, F7, F8, H9, G11		LP-20 Sump Path Available (Flange off w/ No Red Tags on LP-20)	YES ☐	NO ☑		
Time To Core Boil	_____ Minutes				Reactor Bldg Purge is:	OFF ☑	ON ☐		
If Time to Core Boil is ≤ 16 min. ensure equipment hatch is closed.					Equipment Hatch is:	CLOSED ☐	OPEN ☑		
If Time to Core Boil is < 30 min. ensure SPOC is manning equip. hatch if open.					SPOC is manning Equip. Hatch:	YES ☐	NO ☐		

RCS Makeup Paths								
☑ BHUT --> HP-363 --> A / B LPI	A BHUT 57,071 GAL.				**A OTSG**		**B OTSG**	
☑ BWST --> A / B LPI (Forced / Gravity)	BWST 377,146 GAL.			Upper Primary Handholes	ON ☑	OFF ☐	ON ☑	OFF ☐
☑ BWST / BHUT --> A HPI --> HP-410	CBAST 4,770 GAL.			Upper Primary Manways	ON ☑	OFF ☐	ON ☑	OFF ☐
☐ BWST / BHUT --> B HPI --> HP-409				OTSG Nozzle Dam Installed	YES ☐	NO ☐	YES ☐	NO ☑
RCS Boron:	2750 (Actual)	675 (Required)		Cold Legs Are:	DRAINED ☐		NOT DRAINED ☑	
Canal Seal Plate:	ON ☑	OFF ☐		SF-1	OPEN ☐		CLOSED ☑	
Transfer Tube Covers	ON ☑	OFF ☐		SF-2	OPEN ☐		CLOSED ☑	

OFFSITE POWER SOURCES					
CT-1 ☐ CT-2 ☐ CT-3 ☐	Main Feeder Bus # 1 Energized	YES ☑	NO ☐		
BACKCHARGED MAIN TRANSFORMER ☑	Main Feeder Bus # 2 Energized	YES ☑	NO ☐		
CT-5 (From Central Switchyard) ☑					
EMERGENCY POWER SOURCES					
CT-1 ☑ CT-2 ☐ CT-3 ☐	RC-66 Installed on PZR	YES ☐	NO ☑		
CT-4 ☑	RC-67 Installed on PZR	YES ☐	NO ☑		
CT-5 (From Lee Combustion Turbine via Isolated Power Path) ☐	RC-68 Installed on PZR	YES ☐	NO ☑		

NOTES: _____

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

RO ONLY

Admin-207
Perform SG Downcomer Temperature Surveillance

CANDIDATE _____

EXAMINER _____

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Perform SG Downcomer Temperature Surveillance

Alternate Path:

No

Facility JPM #:

New

K/A Rating(s):

System: Gen
K/A: 2.2.12
Rating: 3.7/4.1

Task Standard:

Perform SG Downcomer Temperature Surveillance by procedure for the 1A (and ONLY the 1A) SG and determine that the surveillance is NOT met.

Preferred Evaluation Location:

Simulator __X__ In-Plant _____

Preferred Evaluation Method:

Perform __X___ Simulate ____

References:

OP/1/A/1105/014 Encl 4.1 (Mode 1&2) and Encl. 4.16 (Channel Check Of OTSG Downcomer Temperatures)

Validation Time: 18 minutes **Time Critical:** NO

==========

Candidate: _____ Time Start: _____
NAME Time Finish: _____

Performance Rating: SAT _____ UNSAT _____ Performance Time: _____

Examiner: _____ _____/_____
NAME SIGNATURE DATE

==========

COMMENTS

SIMULATOR OPERATOR INSTRUCTIONS

INITIAL SETUP

1. Recall **SNAP 212**
2. Import files for **Admin 207**
3. Briefly place simulator in **RUN** then return to **FREEZE**

SUBSEQUENT SETUP

It is NOT necessary to recall simulator between JPM's. Simulator can remain in freeze and only actions below are required.

1. Call up different OAC screens than ones required during the JPM

Tools/Equipment/Procedures Needed:

OP/1/A/1105/014 (Control Room Instrumentation Operation And Information)

READ TO OPERATOR

DIRECTION TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

Reactor power = 100%

OP/1/A/1105/014 (Control Room Instrumentation Operation And Information) Enclosure 4.1 (Mode 1 & 2) in progress.

INITIATING CUES:

CR SRO directs you to continue OP/1/A/1105/014 (Control Room Instrumentation Operation And Information) Enclosure 4.1 (Mode 1 & 2) beginning on page 4.

START TIME: _____

		CRITICAL STEP
STEP 1:	Verify All SG Downcomer Temperature computer points agree within 3°F of each other. **IF** All SG Downcomer Temperatures **DO NOT** agree within 3°F of each other, then perform Enclosure "Channel Check Of OTSG Downcomer Temperatures". O1E2008 – 535.4°F O1E2009 – 541.3°F O1E2012 – 535.4°F O1E2013 – 535.4°F	___ SAT ___ UNSAT
STANDARD:	Determine that the above OAC point do **NOT** agree within 3°F of each other, and perform Enclosure "Channel Check Of OTSG Downcomer Temperatures".	
COMMENTS:		
STEP 2:	Step 3.1 Determine saturation temperature for 1A OTSG based on power level and 1A OTSG outlet pressure as follows: Step 3.1.1 Determine 1A OTSG outlet pressure using any one of the following computer points: • O1E2281 – 892.4 psig • O1E2283 – 892.4 psig • O1E2031 – 892.4 psig • O1E2032 – 892.4 psig	___ SAT ___ UNSAT
STANDARD:	Using the OAC determine that 1A OTSG pressure is 892 psig.	
COMMENTS:		

STEP 3:	Step 3.1.2 Using table in Section 4, determine the 1A OTSG saturation temperature based on power level and 1A OTSG Outlet Pressure obtained in step 3.1.1. _____ 1A OTSG saturation temperature	___ SAT ___ UNSAT
STANDARD:	Determine that 1A OTSG saturation temperature is ≈ 535.4°F by using the table iN section 4.	
COMMENTS:		
STEP 4:	Step 3.1.3 Compare O1E2008 SG Lower Downcomer Temperature Loop A to the 1A OTSG saturation temperature determined in step 3.1.2:	___ SAT
STANDARD:	Determine that O1E2008 SG Lower Downcomer Temperature Loop A is approximately the same as the 1A OTSG saturation temperature above.	___ UNSAT
COMMENTS:		
STEP 5:	Step 3.1.4 **IF** O1E2008 SG Lower Downcomer Temperature Loop A is **NOT** within ± 4.9 °F of the 1A OTSG saturation temperature, then enter Condition A of SLC 16.7.5 for OTSG overfill protection system inoperable.	___ SAT
STANDARD:	Determine that O1E2008 SG Lower Downcomer Temperature Loop A is within ± 4.9 °F of the 1A OTSG saturation temperature and N/A this step.	___ UNSAT
COMMENTS:		

STEP 6: Step 3.1.5 Compare O1E2009 SG Lower Downcomer Temperature Loop A to the 1A OTSG saturation temperature determined in step 3.1.2: STANDARD: Determine that O1E2009 SG Lower Downcomer Temperature Loop A is approximately 6ºF above 1A OTSG saturation temperature above COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT
STEP 7: Step 3.1.6 **IF** O1E2009 SG Lower Downcomer Temperature Loop A is **NOT** within ± 4.9 °F of the 1A OTSG saturation temperature, then enter Condition A of SLC 16.7.5 for OTSG overfill protection system inoperable. STANDARD: Determine that O1E2009 SG Lower Downcomer Temperature Loop A is **NOT** within ± 4.9 °F of the 1A OTSG saturation temperature, and enter Condition A of SLC 16.7.5 for OTSG overfill protection system inoperable. **Cue: SRO is notified to enter SLC 16.7.5 Condition A and another operator will complete this procedure** COMMENTS: **END TASK**	**CRITICAL STEP** ___ SAT ___ UNSAT

STOP TIME: _____

CRITICAL STEP EXPLANATIONS:

STEP #	Explanation
1	Step is required to complete the surveillance.
6	Step is required to complete the surveillance.
7	Step is required to determine that entry into SLC 16.7.5 is required.

CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

Reactor power = 100%

OP/1/A/1105/014 (Control Room Instrumentation Operation And Information) Enclosure 4.1 (Mode 1 & 2) in progress.

INITIATING CUES:

CR SRO directs you to continue OP/1/A/1105/014 (Control Room Instrumentation Operation And Information) Enclosure 4.1 (Mode 1 & 2) beginning on page 4.

Enclosure 4.16
Channel Check Of OTSG Downcomer Temperatures

Key

1. Limits And Precautions

None

2. Initial Conditions

2.1 OTSG in service.

3. Procedure

NOTE:	Interpolation of the chart may be necessary for different power levels and OTSG outlet pressures.

3.1 Determine saturation temperature for 1A OTSG based on power level and 1A OTSG outlet pressure as follows:

SISM off 3.1.1 Determine 1A OTSG outlet pressure using any one of the following computer points:

- O1E2281
- O1E2283
- O1E2031
- O1E2032

SISM off 3.1.2 Using table in Section 4, determine the 1A OTSG saturation temperature based on power level and 1A OTSG Outlet Pressure obtained in step 3.1.1.

535.3 1A OTSG saturation temperature

SISM off 3.1.3 Compare O1E2008 SG Lower Downcomer Temperature Loop A to the 1A OTSG saturation temperature determined in step 3.1.2:

CPMS/A 3.1.4 **IF** O1E2008 SG Lower Downcomer Temperature Loop A is **NOT** within ± 4.9 °F of the 1A OTSG saturation temperature, then enter Condition A of SLC 16.7.5 for OTSG overfill protection system inoperable.

SISM off 3.1.5 Compare O1E2009 SG Lower Downcomer Temperature Loop A to the 1A OTSG saturation temperature determined in step 3.1.2:

SISM off 3.1.6 **IF** O1E2009 SG Lower Downcomer Temperature Loop A is **NOT** within ± 4.9 °F of the 1A OTSG saturation temperature, then enter Condition A of SLC 16.7.5 for OTSG overfill protection system inoperable.

NOTE:	Interpolation of the chart may be necessary for different power levels and OTSG outlet pressures.

3.2 Determine saturation temperature for 1B OTSG based on power level and 1B OTSG outlet pressure as follows:

sis off 3.2.1 Determine 1B OTSG outlet pressure using <u>any one</u> of the following computer points:

- O1E2282
- O1E2284

sis off 3.2.2 Using table in Section 4, determine the 1B OTSG saturation temperature based on power level and 1B OTSG Outlet Pressure obtained in step 3.2.1.

_____ 1B OTSG saturation temperature

sis off 3.2.3 Compare O1E2012 SG Lower Downcomer Temperature Loop B to the 1B OTSG saturation temperature determined in step 3.2.2:

N/A 3.2.4 **<u>IF</u>** O1E2012 SG Lower Downcomer Temperature Loop B is **<u>NOT</u>** within ± 4.9 °F of the 1B OTSG saturation temperature, then enter Condition A of SLC 16.7.5 for OTSG overfill protection system inoperable.

sis off 3.2.5 Compare O1E2013 SG Lower Downcomer Temperature Loop B to the 1B OTSG saturation temperature determined in step 3.2.2:

N/A 3.2.6 **<u>IF</u>** O1E2013 SG Lower Downcomer Temperature Loop B is **<u>NOT</u>** within ± 4.9 °F of the 1B OTSG saturation temperature, then enter Condition A of SLC 16.7.5 for OTSG overfill protection system inoperable.

4. OTSG Lower Downcomer Saturation Temperature (°F) As A Function Of Power Level And OTSG Outlet Pressure

NOTE: Interpolation of the chart may be necessary for different power levels and OTSG outlet pressures.

Power Level (%)	OTSG Outlet Pressure (psig)						
	860	870	880	890	900	910	920
15	529.1	530.4	531.7	533.0	534.3	535.6	536.9
25	529.2	530.5	531.8	533.1	534.4	535.7	537.0
35	529.3	530.6	531.9	533.2	534.5	535.8	537.1
50	529.5	530.9	532.2	533.5	534.8	536.1	537.4
65	529.9	531.2	532.5	533.9	535.1	536.4	537.7
75	530.2	531.5	532.8	534.1	535.4	536.7	538.0
85	530.6	531.9	533.2	534.5	535.8	537.0	538.3
95	530.9	532.3	533.6	534.9	536.1	537.4	538.7
100	531.2	532.5	533.8	535.1	536.4	537.6	538.9

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

SRO ONLY

ADMIN-303

STAY TIME CALCULATION

CANDIDATE _____

EXAMINER _____

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Determine stay time for an activity

Alternate Path:

No

Facility JPM #:

Admin 303

K/A Rating(s):

System: GEN
K/A: 2.3.7
Rating: 3.5/3.6

Task Standard:

Correctly determine that total dose received for the job is 16.7 mR and maximum clock time to complete venting without exceeding RWP dose limits is 18.5 minutes (18.0 – 19.0 is acceptable).

Preferred Evaluation Location:

Simulator _____ In-Plant _____

Preferred Evaluation Method:

Perform __X___ Simulate ____

References:

NSD-507, Radiation Protection

Validation Time: 13 minutes **Time Critical:** NO

==========

Candidate: _____ Time Start: _____
NAME Time Finish: _____

Performance Rating: SAT _____ UNSAT _____ Performance Time: _____

Examiner: _____ _____/_____
NAME SIGNATURE DATE

==========

COMMENTS

SIMULATOR OPERATOR INSTRUCTIONS:

None

Tools/Equipment/Procedures Needed:

Radiation Work Permit # 23

Survey Map

READ TO OPERATOR

DIRECTION TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

Unit 1 is in AP/26, Loss of Decay Heat Removal and you are to:

- Stage yourself inside Room 61 where you can minimize your dose while waiting
- Vent 1A LPI pump when directed

Room 61 is posted: **High Radiation Area**

0800 – You enter Room 61

0830 – You are directed to vent 1A LPI pump

0842 – Venting is completed. You immediately exit the Room and report back to the Control Room.

INITIATING CUES:

Based on the time line, RWP 23, and Room 61 survey map provided:

1. State the amount of dose that was received for the duration of this task.

2. Assuming you entered the room and began venting at the previously stated times, determine the maximum time that you could vent the pump without exceeding a limit imposed by the RWP.

START TIME: _____

STEP 1: What dose will be received for the duration of this task? Based on a 30 minute wait at the LEWA and 12 minutes at LPI Pump and the nearest posted general area dose rates (12 mr/hr): LEWA dose: **3 mr/hr X 0.5 hr = 1.5 mR** Vent time dose Area dose is **12/60 hr X 76 mr/hr = 15.2 mR** Estimated total dose received is **1.5 + 15.2= 16.7 mR** **NOTE: Acceptable range is 16.5 mR to 17.2 mR** STANDARD: Calculates the dose received for the duration of the task. COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT
STEP 2: What is the maximum time that the pump casing could have been vented before reaching a limit imposed by the RWP? Based on the nearest general area dose rates (76 mr/hr): **The RWP Dose Alarm is 25 mR.** LEWA is **3 mr/hr X 0.5 hr = 1.5 mR** Vent time dose rate is **Rad level = 76 mr/hr** Solving: **23.5 mr is allowable dose once venting starts** $\frac{23.5 \text{ mr}}{76 \text{ mr/hr}}$ = **0.309 hours or 18.5 minutes** **Note: Acceptable range is 18.0 - 19.0 minutes.** STANDARD: Calculates maximum venting time. COMMENTS: **END TASK**	**CRITICAL STEP** ___ SAT ___ UNSAT

STOP TIME: _____

CRITICAL STEP EXPLANATIONS:

STEP #	Explanation
1	Required to calculate dose received while performing task.
2	Required to calculate the maximum venting time.

CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

DIRECTION TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

Unit 1 is in AP/26, Loss of Decay Heat Removal and you are to:

- Stage yourself inside Room 61 where you can minimize your dose while waiting
- Vent 1A LPI pump when directed

Room 61 is posted: **High Radiation Area**

0800 – You enter Room 61

0830 – You are directed to vent 1A LPI pump

0842 – Venting is completed. You immediately exit the Room and report back to the Control Room.

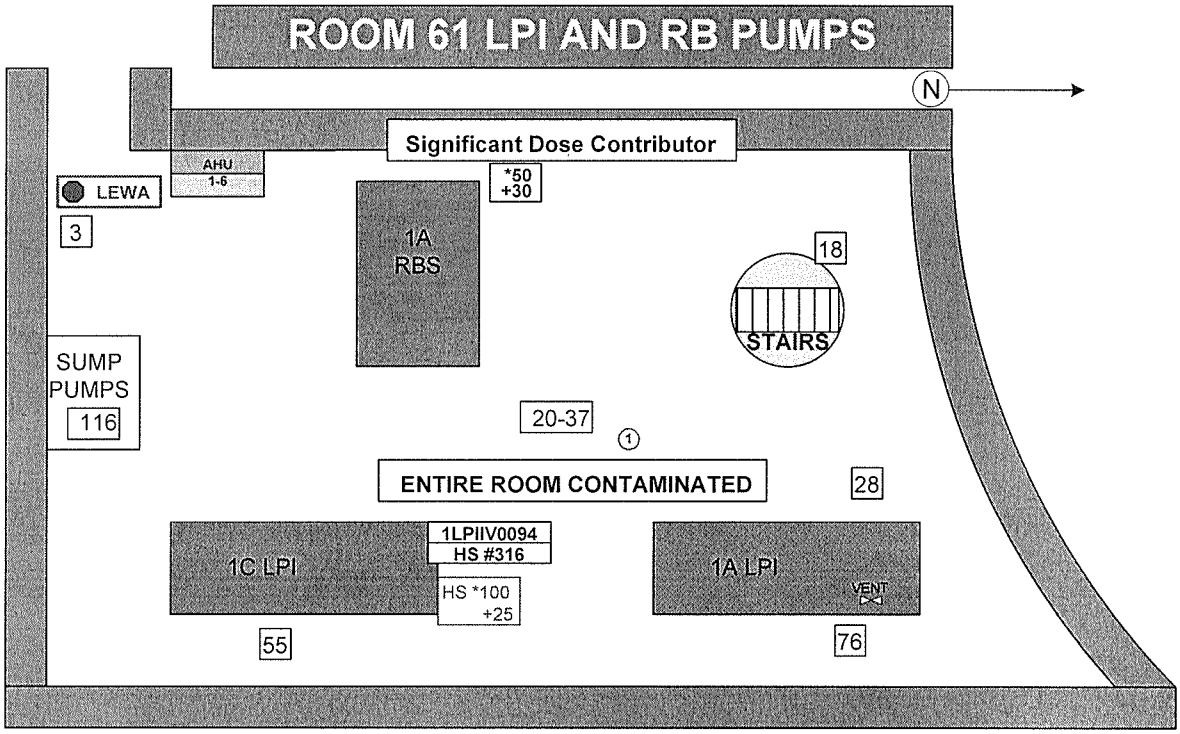
INITIATING CUES:

Based on the time line, RWP 23, and Room 61 survey map provided:

1. State the amount of dose that was received for the duration of this task.

2. Assuming you entered the room and began venting at the previously stated times, determine the maximum time that you could vent the pump without exceeding a limit imposed by the RWP.

Room 61 LPI & RBS Pumps	Survey # M-021506-17	Date/Time 03/26/2010 13:06



Comments: PLANVIEW UPDATED TO SHOW ENTIRE ROOM CONTAMINATED FOR RECOATING PROJECT. ALL DOSE RATE INFO. FROM PREVIOUS SURVEY M-020706-2

Summary of Highest Readings

Smears	Air Samples & Wipes
1) 2554 DPM/100 cm2 β/γ	

Symbol Legend (for example only)

Dose Rate
*150 — Contact Reading
+75 — 30 cm Reading
20 — General Area

HS-50 Hot Spot
RCA Posting
Drip Bag
15 Smear
15 Air Sample
15 Wipe

Type: Job Coverage
RWP: 5036
Reactor Power = 100%

Unless otherwise noted, dose rates in mrem/hr.

Surveyor: W. Walters

Approved by: N. Wriston, 03/27/2010

Training Use Only

Oconee Nuclear Station
Radiation Work Permit

Training Use Only

Entry For Routine Plant And Systems Operation **RWP # 23** **Rev: 27**

Task # 1

Entry for Routine Plant and Systems Operation in High Radiation Areas (Operations)

ED Alarm Set Points:

Dose Alarm: 10 **Dose Rate Alarm: 50**

Stay Time Alarm: 55:00

RWP Requirements

Dress Category/Work Description

- Dress Category "A" Work in a non-contaminated area
- Dress Category "B" Work in a non-contaminated area with contaminated material where there is NO potential for contact with
- Dress Category "C" Work in a non-contaminated area with contaminated material where there is NO potential for contact with
- Dress Category "D" Work of short duration, in open area(s) with NO obstructions that could contribute to contamination of unprotected
- Dress Category "E" Work where: (1) Complete protection of skin and clothing is NOT required; (2) Durability of surgical gloves requires
- Dress Category "F" Work in a contaminated area where complete protection of skin and clothing is NOT necessary.
- Dress Category "G" Work in a dry contaminated area.
- Dress Category "H" Work in a contaminated area.
- Dress Category "I" Hands on work with higher contaminated material or beta dose concerns to hands only.
- Dress Category "N" Performing work in contaminated wet conditions.
- Modesty garments, top & bottom, are required under protective clothing where personal outer clothing is not worn

Contamination Control

- Change outer rubber gloves often when handling highly contaminated material as directed by RP
- If installing a drain rig, secure hose OR tubing to floor drain
- If installing a drain rig, use hose clamps or similar device to secure hose OR tubing connections
- Install catch containments OR drain rigs to prevent spills if draining components
- Use surgical gloves in lieu of rubber gloves for the manipulation of small or specialty items as directed by RP
- Utilize facial protection (e.g. face shield, hood sock, power visor) as directed by RP
- Wear disposable (plastic) booties inside of orex booties for work in wet conditions
- Wipe down AND bag all tools and equipment prior to removal from a contaminated area as directed by RP

RP Job Coverage

- Pre-job briefing required
- Start of Job, Intermittent or No Coverage for work in High Radiation Areas or less
- Timekeeping/dose controller required for workers exposed to an actual dose rate >1500 mrem/hr OR dose will exceed 500 mrem for an individual entry

Dosimetry Requirements

- 1. High noise level in the work area.
- 2. Use of head phones
- 3. Hearing impairment
- 4. Any other condition that would impair hearing an ED alarm
- An Auxiliary ED alarm is required in areas where general area dose rates are > 100 mrem/hr if any of the following conditions exist:
- Monitor ED periodically while inside the RCA/RCZ (once or twice per hour in low dose rate areas). Monitor more frequently in higher dose

Respiratory Protection

- If weighted DAC-Hours are expected to result in greater than or equal to 4 DAC-Hours per person, perform a TEDE/ALARA evaluation

• Full Face Particulate (Additional Hood Required) IF warranted by TEDE ALARA Evaluation OR directed by RP

RP Hold Points

• Accumulated dose higher than expected
• Notify RP prior to reaching OR entry into the overhead (8 feet and above)
• Notify RP Prior to Start of Work
• RP briefing required prior to entering High Radiation Areas
• RP survey required prior to handling debris or foreign material
• RP survey required prior to handling valve/pump parts or internals

Stop Work Criteria

• Actual contamination levels are higher than the expected levels written on this RWP task
• Actual dose rates are higher than the expected levels written on this RWP task

• Dose Alarm
• Failure of OR sweat soaked protective clothing
• If monitoring of the ED indicates that the dose alarm set point will be exceeded prior to completing the job, leave the area and contact RP. Do not wait to receive an alarm before exiting the area
• Unexpected dose rate alarm
• Unexpected wet conditions
• Work scope changes

Expected Radiological Conditions

General area dose rates: 0.1 mrem/hr - 100 mrem/hr
High contact dose rates: 0.1 mrem/hr - 3000 mrem/hr
Contamination levels: <1000 dpm/100cm2 - 100,000 dpm/100cm2 (Beta/Gamma)
Contamination levels: 0 dpm/100cm2 - 300 dpm/100cm2 (Alpha)

Additional Instructions

Oconee Nuclear Station
Radiation Work Permit

Entry For Routine Plant And Systems Operation **RWP # 23** **Rev: 27**

Task # 2

Entry for Routine Plant and Systems Operation in High Radiation Areas (Operations)

ED Alarm Set Points:

Dose Alarm: 25 **Dose Rate Alarm: 500**

Stay Time Alarm: 55:00

High Radiation Area Entry

RWP Requirements

Dress Category/Work Description

- Dress Category "A" Work in a non-contaminated area
- Dress Category "B" Work in a non-contaminated area with contaminated material where there is NO potential for contact with
- Dress Category "C" Work in a non-contaminated area with contaminated material where there is NO potential for contact with
- Dress Category "D" Work of short duration, in open area(s) with NO obstructions that could contribute to contamination of unprotected
- Dress Category "E" Work where: (1) Complete protection of skin and clothing is NOT required; (2) Durability of surgical gloves requires
- Dress Category "F" Work in a contaminated area where complete protection of skin and clothing is NOT necessary.
- Dress Category "G" Work in a dry contaminated area.
- Dress Category "H" Work in a contaminated area.
- Dress Category "I" Hands on work with higher contaminated material or beta dose concerns to hands only.
- Dress Category "N" Performing work in contaminated wet conditions.
- Modesty garments, top & bottom, are required under protective clothing where personal outer clothing is not worn

Contamination Control

- Change outer rubber gloves often when handling highly contaminated material as directed by RP
- If installing a drain rig, secure hose OR tubing to floor drain
- If installing a drain rig, use hose clamps or similar device to secure hose OR tubing connections
- Install catch containments OR drain rigs to prevent spills if draining components
- Use surgical gloves in lieu of rubber gloves for the manipulation of small or specialty items as directed by RP
- Utilize facial protection (e.g. face shield, hood sock, power visor) as directed by RP
- Wear disposable (plastic) booties inside of orex booties for work in wet conditions
- Wipe down AND bag all tools and equipment prior to removal from a contaminated area as directed by RP

RP Job Coverage

- Pre-job briefing required
- Start of Job, Intermittent or No Coverage for work in High Radiation Areas or less
- Timekeeping/dose controller required for workers exposed to an actual dose rate >1500 mrem/hr OR dose will exceed 500 mrem for an individual entry

Dosimetry Requirements

- 1. High noise level in the work area.
- 2. Use of head phones
- 3. Hearing impairment
- 4. Any other condition that would impair hearing an ED alarm
- An Auxiliary ED alarm is required in areas where general area dose rates are > 100 mrem/hr if any of the following conditions exist:
- Monitor ED periodically while inside the RCA/RCZ (once or twice per hour in low dose rate areas). Monitor more frequently in higher dose

Respiratory Protection

- If weighted DAC-Hours are expected to result in greater than or equal to 4 DAC-Hours per person, perform a TEDE/ALARA evaluation
- Full Face Particulate (Additional Hood Required) IF warranted by TEDE ALARA Evaluation OR directed by RP

RP Hold Points

- Accumulated dose higher than expected
- Notify RP prior to reaching OR entry into the overhead (8 feet and above)
- Notify RP Prior to Start of Work
- RP briefing required prior to entering High Radiation Areas
- RP survey required prior to handling debris or foreign material
- RP survey required prior to handling valve/pump parts or internals

Stop Work Criteria

- Actual contamination levels are higher than the expected levels written on this RWP task
- Actual dose rates are higher than the expected levels written on this RWP task
- Dose Alarm
- Failure of OR sweat soaked protective clothing
- If monitoring of the ED indicates that the dose alarm set point will be exceeded prior to completing the job, leave the area and contact RP. Do not wait to receive an alarm before exiting the area
- Unexpected dose rate alarm
- Unexpected wet conditions
- Work scope changes

Expected Radiological Conditions

General area dose rates: 100 mrem/hr - 700 mrem/hr
High contact dose rates: 0.1 mrem/hr - 3000 mrem/hr
Contamination levels: <1000 dpm/100cm2 - 100,000 dpm/100cm2 (Beta/Gamma)
Contamination levels: 0 dpm/100cm2 - 300 dpm/100cm2 (Alpha)

Additional Instructions

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Admin-402

Perform Actions for Medical Emergency

RO ONLY

CANDIDATE _____

EXAMINER _____

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Perform Actions for Medical Emergency

Alternate Path:

No

Facility JPM #:

Admin 402

K/A Rating(s):

System: GEN
K/A: 2.4.39
Rating: 3.9/3.8

Task Standard:

Complete RP/1000/016, Encl. 4.1 (Medical Response).

Preferred Evaluation Location:

Simulator ___X___ In-Plant _____

Preferred Evaluation Method:

Perform ___X___ Simulate _____

References:

RP/1000/016, Encl. 4.1 (Medical Response)

Validation Time: 15 minutes **Time Critical:** NO

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Candidate: _____ Time Start: _____
NAME Time Finish: _____

Performance Rating: SAT _____ UNSAT _____ Performance Time: _____

Examiner: _____ _____/_____
NAME SIGNATURE DATE

==========

COMMENTS

SIMULATOR OPERATOR INSTRUCTIONS:

1. Ensure ALL cables leading to MERT activation phone are disconnected.
2. Verify RP/0/B/1000/016 clean copy available in control room RO bookshelf.
3. Ensure radios are available and operable.

Tools/Equipment/Procedures Needed:

RP/1000/016, Encl. 4.1 (Medical Emergency Action – Routine Operations)

READ TO OPERATOR

DIRECTION TO TRAINEE:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

1. You have answered a call on 4911 (emergency line) reporting a medical emergency.

2. The caller is still on the line.

INITIATING CUES:

The SRO in the control room instructs you to perform the required actions for a medical emergency.

START TIME: _____

STEP 1:	Determine the appropriate procedure to use.	___ SAT
STANDARD:	RP/0/B/1000/016 (Medical Response) is referenced and Enclosure 4.1 (Medical Emergency Actions - Routine Operations) is determined to be the appropriate procedure to use. Enclosure 4.1 is obtained from notebook located in the front of the control room desk or from the cart in the TSC.	___ UNSAT
COMMENTS:		
STEP 2:	Step 1.1 Complete the procedure steps that apply to this medical emergency, N/A steps not performed.	___ SAT
STANDARD:	Complete Enclosure 4.1 as indicated on the Key.	___ UNSAT
COMMENTS:		

STEP 3: Step 1.2 Complete the following accident information: • Name of person reporting injury • Call back number • Name of person injured • Supervisor of injured person • Location injury occurred • Brief description of injury • Date / Time **Cue: The evaluator should provide a copy of the attached information sheet for the phone call data** STANDARD: The candidate obtains the above information from the evaluator by asking the appropriate questions and completes step 1.2 correctly. **Note: Refer to the completed procedure as an answer key.** COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT
STEP 4: Step 1.3 **IAAT** MERT response is **NO** longer required. **THEN** Exit this procedure and forward to Emergency Planning - ONO3EP STANDARD: Determine MERT is still required and continue. COMMENTS:	___ SAT ___ UNSAT

STEP 5: Step 1.4 **IF** There is a Security Event in progress, **THEN** Continue with… STANDARD: Determine a Security Event is not in progress and N/A step 1.4. ***Cue: If asked, inform candidate a Security Event is not in progress.*** COMMENTS:	___ SAT ___ UNSAT
STEP 6: Step 1.5 **IF** MERT activation is required **THEN** perform the following: • Use Plant Page to request all MERT members to respond to the incident. • Use the radio paging system to request MERT members to respond to the incident. STANDARD: Use Plant Page to request all MERT members to respond to the incident. COMMENTS:	___ SAT ___ UNSAT

STEP 7: Step 1.5.1 Use the following directions to activate radios and pagers encoded to the MERT alert tones: 1. Press the "GREEN" button labeled "MERT" on the paging console 2. Press the "RED" Button labeled "transmit" on the right bottom of the console and wait approximately 3 seconds. 3. Pick up telephone "handset" on console and press the lever located inside the handset 4. Transmit message STANDARD: Locate paging console in the OSM booth in the simulator. **Cue: Inform candidate that the screen at the top of the phone is illuminated and contains the word "Operations"** Press the "GREEN" button labeled "MERT" on the paging console **Cue: Inform candidate that upper light to the left of the green MERT key illuminates green when the MERT button is depressed.** Press the "RED" Button labeled "transmit" on the right bottom of the console and wait approximately 3 seconds. **Cue: Inform candidate that light above the TRANSMIT key illuminates red and a "warble tone" is heard when the TRANSMIT button is depressed.** Pick up telephone "handset" on console and press the lever located inside the handset Transmit message COMMENTS: * BASED on a POST EXAM comment this Step was Graded as SATISFACTORY AS LONG AS the applicant Depressed the "GREEN" Button the Depressed the "RED" Button - & USED the handset, Prossed the lever & Transmitted the message.	**CRITICAL STEP** ___ SAT ___ UNSAT

STEP 8: Step 1.5.2 **IF** Paging system is inoperable in Unit 1 Control Room, **THEN** Request Unit 3 Control Room to activate MERT or use paging system located in TSC. STANDARD: Determine paging system is operable and N/A the step. ***Cue: If ask, inform candidate that paging system is operable.*** COMMENTS:	___ SAT ___ UNSAT
STEP 9: Step 1.5.3 Repeat Steps 1.5 and 1.5.1. STANDARD: Repeat steps 1.5 and 1.5.1. COMMENTS:	___ SAT ___ UNSAT
NOTE: Do **NOT** call Security if there is a security event in progress. STEP 10: Step 1.5.4 Call Security at one of the following extensions and request they have security MERT members respond to the emergency. • SAS (Secondary Alarm Station) 2205 or 2767 • CAS (Central Alarm Station) 2222 or 2958 STANDARD: Security is notified at one of the above extensions and are requested to have security MERT members respond to the emergency. COMMENTS:	___ SAT ___ UNSAT

NOTE: IF the MERT incident occurs away from the main plant (World of Energy, Keowee Hydro, Complex, etc.) **THEN** a shuttle bus will be required to transport responding MERT personnel. STEP 11: Step 1.5.5 **IF** The incident occurs during normal working hours and shuttle bus service is required. **THEN** Call extension 5353 and… STANDARD: Determine that this step does not apply and N/A step. COMMENTS:	___ SAT ___ UNSAT
STEP 12: Step 1.6 **IF** The incident involves a trench collapse **THEN** Contact Oconee Rural Fire by one of the following methods: STANDARD: Determine that this step does not apply and N/A step 1.6 COMMENTS:	___ SAT ___ UNSAT
STEP 13: Step 1.7 **IF** A mass casualty event has occurred or is suspected, and a centralized treatment area is needed, and plant conditions allow, **THEN** Make a PA Announcement… STANDARD: Determine that this step does not apply and N/A step 1.7 COMMENTS:	___ SAT ___ UNSAT

STEP 14: Step 1.8 **IF** Hospital evacuation is needed as determined by MERT Command or as indicated by Step 1.8.1, **THEN** Arrange transport of patient to the hospital by one of the following means: • EMS (ambulance) Dial 9-911 from the Operations Shift Manager's phone or Unit 1 Control Room SRO's phone or dial 911 from the bell South line – Unit 1, 2, and 3 Control Rooms. Refer to Step 1.8.2, prior to requesting EMS. • Company vehicle (less serious injury) • Personal vehicle (less serious injury) **Cue: This will have to be simulated only since simulator phones do not model outside lines.** STANDARD: Determine that a Hospital evacuation is required due to the person being unconscious. Ambulance is requested by calling 9-911. Ambulance is requested to come to Oconee Nuclear Station. COMMENTS: * THE CRITICAL ELEMENT OF THIS Step is to REQUEST AN AMBULANCE. Delegating this to Security Is Acceptable.	**CRITICAL STEP** ___ SAT ___ UNSAT
STEP 15: Step 1.8.1 **IF** Any of the following illnesses or injuries are reported on the emergency line (4911) **THEN** Immediately request EMS (ambulance) to respond to the site: • Unconsciousness STANDARD: Determine that the injured is unconscious and perform step 1.8. (Step 14 above) **Cue: This will have to be simulated only since simulator phones do not model outside lines.** COMMENTS:	___ SAT ___ UNSAT

STEP 16: Step 1.8.2 **IF** The patient is known or suspected to be radiologically contaminated, **THEN** Request from MERT… STANDARD: Determine that this step does not apply and N/A step 1.8.2 ***Cue: If asked, inform candidate that the patient is NOT contaminated.*** COMMENTS:	___ SAT ___ UNSAT
STEP 17: Step 1.8.3 Notify Security at 2222 that the ambulance is enroute. STANDARD: Security is notified that the ambulance is enroute COMMENTS:	___ SAT ___ UNSAT
STEP 18: Step 1.8.4 Notify MERT Command that the ambulance is enroute. STANDARD: MERT Command is notified via radio that the ambulance is enroute. COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT
STEP 19: Step 1.8.5 Notify World of Energy/Public Affairs Duty Person (Ext. 4602 during operating hours). STANDARD: World of Energy Duty Person is notified by phone. COMMENTS:	___ SAT ___ UNSAT

STEP 20: Step 1.9 **IF** Radiological contamination is involved and the person is being sent to a hospital. **THEN** Complete… STANDARD: Determine that this step does not apply and N/A step 1.9. COMMENTS:	___ SAT ___ UNSAT
STEP 21: Step 1.10 Remind MERT Command that a Patient Treatment Form or Refusal of Treatment/Transport Against Medical Advice Form needs to be completed for all patients and that the completed form is to be sent to the Medical Unit for inclusion in the patient's medical file. STANDARD: MERT Command is informed that a Patient Treatment Form needs to be completed and sent to the Medical Unit. ***Cue: Inform candidate to simulate only.*** COMMENTS:	___ SAT ___ UNSAT
STEP 22: Step 1.11 **IF** after normal working hours… STANDARD: Determine that this step does not apply and N/A step 1.11. COMMENTS:	___ SAT ___ UNSAT

STEP 23: Step 1.12 In the event of a fatality… STANDARD: Determine that this step does not apply and N/A step 1.12. COMMENTS:	___ SAT ___ UNSAT
STEP 24: Step 1.13 **IF** the employee is transferred to an offsite medical facility. **THEN** notify the STA to make appropriate notifications of the transport. STANDARD: Notify the STA to make appropriate notifications of the transport. COMMENTS:	___ SAT ___ UNSAT
STEP 25: Step 1.14 **IF** A death, near death, or major traumatic injury incident occurs… STANDARD: Determine that this step does not apply and N/A step 1.14. COMMENTS:	___ SAT ___ UNSAT
STEP 26: Submit completed Enclosure 4.1, (Medical Emergency Action –Routine Operations) to the Emergency Planning Section. STANDARD: Indicate that the completed form would be submitted to the Emergency Planning Section. **Cue: Another operator will continue with this procedure and the JPM is completed.** COMMENTS: **END TASK**	___ SAT ___ UNSAT

STOP TIME: _____

Medical Emergency Phone Call Information Sheet

1. Name person calling
   John Adams

2. Call back number
   2322

3. Name of injured person
   David Smith

4. Supervisor of injured person
   Allan Jones

5. Location injury occurred
   Unit 3 HPI Pump Room
   The injured is currently located in the clean side of Unit 3's change room (3rd floor Aux Building).
   Injured is NOT contaminated

6. Description of injury
   The injured stood up to put on his hard hat and hit his head on a cable tray resulting in a laceration to top of head. The wound is continuing to bleed. The injured is unconscious.

7. Time
   Current time

CRITICAL STEP EXPLANATIONS:

STEP #	Explanation
3	Needed to complete the procedure.
7	Need to activate MERT.
14	Ambulance has to be requested.
18	MERT command should be notified so that the injured can be taken to the pickup point.

CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

INITIAL CONDITIONS:

1. You have answered a call on 4911 (emergency line) reporting a medical emergency.

2. The caller is still on the line.

INITIATING CUES:

The SRO in the control room instructs you perform the required actions for a medical emergency.

KEY

1. Medical Emergency Actions Routine Operations

NOTE:
- Security Manager or designee in the Operational Support Center (OSC) will assume responsibility for running this procedure Enclosure 4.2, (Medical Emergency Actions OSC/TSC Activated) after the TSC/OSC is established and turnover is accepted from Operations. The Security Manager or designee will also assume the responsibility of MERT Communicator after activation of the TSC/OSC.
- Actions may be followed in any sequence.
- Lines left of procedure steps are used to indicate place in procedure. Check marks are acceptable in these blanks.

____ 1.1 Complete the procedure steps that apply to this medical emergency, N/A steps not performed.

✓ 1.2 Complete the following accident information:

Name of person reporting injury John Adams

Call back number 2322

Name of person(s) injured:

David Smith

Supervisor of injured person: Allan Jones

Location injury occurred Unit 3 HPI Pump Room

Brief description of injury hit head on Cable tray resulting in laceration to top of head. Wound continues to bleed. Person is unconscious

Date Todays Date Time Current Time

____ 1.3 **IAAT** MERT response is **NO** longer required.

THEN Exit this procedure and forward to Emergency Planning - ONO3EP {6}

NOTE: Do **NOT** activate MERT when a security event is in progress until Security confirms that it is safe for MERT members to respond.

gdw/A 1.4 **IF** There is a **Security Event** in progress,

THEN Continue with Step 1.4.1 or 1.4.2 as appropriate; if **NOT**, go to Step 1.5.

____ 1.4.1 **IF** The patient is outside the Protected Area,

THEN Dial 9-911 from the Operations Shift Manager's phone or Unit 1 Control Room SRO's phone or dial 911 from the Bell South line: Units 1/2 and 3 Control Rooms. Request EMS to respond along with local law enforcement.

✓ 1.4.2 **IF** The patient is inside the Protected Area,

THEN Wait until Security gives assurance that it is safe for MERT to respond before proceeding to Step 1.5.

✓ 1.5 **IF** MERT activation is required

THEN perform the following:

✓ 1. Use Plant Page to request all MERT members to respond to the incident.

✓ 2. Use the radio paging system to request MERT members to respond to the incident.

1.5.1 Use the following directions to activate radios and pagers encoded to the MERT alert tones:

1. Press the "GREEN" button labeled "MERT" on the paging console
2. Press the "RED" Button labeled "transmit" on the right bottom of the console and wait approximately 3 seconds.
3. Pick up telephone "handset" on console and press the lever located inside the handset
4. Transmit message

N/A 1.5.2 **IF** Paging system is inoperable in Unit 1 Control Room,

THEN Request Unit 3 Control Room to activate MERT or use paging system located in TSC.

✓ 1.5.3 Repeat Steps 1.5 and 1.5.1.

NOTE: Do **NOT** call Security if there is a security event in progress.

✓ 1.5.4 Call Security at one of the following extensions and request they have Security MERT members respond to the emergency.

SAS (Secondary Alarm Station) - 2205 or 2767

CAS (Central Alarm Station) - 2222 or 2958

NOTE: **IF** the MERT incident occurs away from the main plant (World of Energy, Keowee Hydro, Complex, etc.)

THEN a shuttle bus will be required to transport responding MERT personnel.

N/A 1.5.5 **IF** The incident occurs during normal working hours and shuttle bus service is required.

THEN Call extension 5353 and

- Request shuttle bus to meet MERT responders at main entrance of protected area for transport to emergency scene.
- Make PA/Radio announcement that a bus has been requested to meet MERT responders at main entrance of protected area for transport to emergency scene. {3}

crN/A 1.6 **IF** The incident involves a trench collapse

THEN Contact Oconee Rural Fire by one of the following methods:

- Dial 9-911 from Ext. 3271 Operations Shift Manager's phone
- Dial 9-911 from Ext. 2159 Unit 1 Control Room SRO's phone
- Dial 911 from 882-7076 Units 1, 2, & 3 Control Room, Bell South lines

A. Request a response from:

☐ Keowee Fire Department

☐ Keowee Ebenezer Fire Department

☐ Corinth Shiloh Fire Department

B. Instruct Fire Dispatcher to have fire departments enter the site through the complex entrance on Hwy. 183. All volunteers stage in complex parking lot.

C. Call Security at ext. 2222 and request that that they have an officer escort the fire departments to the incident location. {7}

NOTE: The primary location for Triage, should it be needed, is the Oconee Office Building. An alternate location may need to be selected depending on the area of the plant involved in the incident.

crN/A 1.7 **IF** A mass casualty event has occurred or is suspected, and a centralized treatment area is needed, and plant conditions allow,

THEN Make a PA Announcement emphasizing the following:

- Location of the Triage area
- Warn that only trained medical personnel should move injured people unless there are life threatening conditions in the area.

NOTE:
- Occupational Health Unit may call direct and request an ambulance without going through the emergency line (4911). Immediate notification will then be made to the Operations Shift Manager or his designee.
- Patients with less serious injuries or illnesses may be transported to offsite medical facilities by personal or company vehicle if site Medical or MERT Command gives approval.

✓ 1.8 **IF** Hospital evaluation is needed as determined by MERT Command or as indicated by Step 1.8.1,

THEN Arrange transport of patient to the hospital by one of the following means:

- EMS (ambulance)
- Dial 9-911 from the Operations Shift Manager's phone or Unit 1 Control Room SRO's phone or dial 911 from the Bell South line - Units 1/2 and 3 Control Rooms. Refer to Step 1.8.2, prior to requesting EMS.
- Company vehicle (less serious injury)
- Personal vehicle (less serious injury)

✓ 1.8.1 **IF** Any of the following illnesses or injuries are reported on emergency line (4911):

- unconsciousness
- cardiac arrest
- fall greater than 10-12 feet (qualified as multi-trauma)
- obvious fractures (with deformity or open wounds)
- amputations
- allergic reaction WITH airway compromise (swollen lips, tongue)
- poisonous snake bite
- head injury with altered level of consciousness (confusion, disorientation)
- altered mental status (confusion, disorientation)
- seizure (grand mal)
- respiratory distress
- entrapped person
- crushing injuries

THEN Immediately request EMS (ambulance) to respond to the site.

NOTE:	EMS personnel will not prepare for a radiologically contaminated patient while enroute to the site unless the EMS dispatcher is requested to relay this information to them at the time of dispatch.

N/A 1.8.2 **IF** The patient is known or suspected to be radiologically contaminated,

THEN Request from MERT command the extent of contamination (gross contamination, PC contamination, modesty garment) and if possible contamination levels.

Call Oconee Memorial Hospital, 9-882-4611 with the above information.

✓ 1.8.3 Notify Security at 2222 that the ambulance is enroute.

✓ 1.8.4 Notify MERT Command that the ambulance is enroute.

✓ 1.8.5 Notify World of Energy/Public Affairs Duty Person (Ext. 4602 during operating hours).

NOTE:	**IF**	Transportation of a radiologically contaminated person to an offsite medical facility is required.
	THEN	The NRC must be notified within eight (8) hours (ref. 10CFR50.72 (b) (3) (xii).

N/A 1.9 **IF** Radiological contamination is involved and the person is being sent to a hospital.

THEN: Complete the following

1.9.1 Request MERT Command to FAX the Patient Treatment Form to the appropriate hospital as soon as possible.

✓ 1.9.2 Determine if a Radiation Protection Technician accompanied the contaminated patient to the hospital.

IF A RP Technician did not go with the ambulance to the hospital

THEN Arrange for the first available one to go and assist the hospital with radiation monitoring and contamination control as needed

N/A 1.9.3 Notify Operations Shift Manager to refer to NSD 202 for reportability requirements.

✓ 1.10 Remind MERT Command that a Patient Treatment Form or Refusal of Treatment/Transport Against Medical Advice Form needs to be completed for all patients and that the completed form is to be sent to the Medical Unit for inclusion in the patients medical file. {2}

NOTE:	The Environmental Health & Safety Manual has additional information for the EH&S Duty Person if needed.

N/A 1.11 **IF** after normal working hours; have the Operations Shift Manager or designee report the following incidents to ONS EH&S Duty Person.

- Fatality (including heart attacks at work)
- Injuries requiring offsite medical treatment
- Admission of 3 or more employees to the hospital for in-patient care
- Serious accidents (near miss) whereby personnel could have sustained a disabling injury although not resulting in an injury
- Electric contact, shock or flash burns
- Injuries or burns resulting from a fire
- Vehicle accidents
- Accident involving serious property damage
- Accident involving potential DPC liability

THEN the ONS EH&S Duty Person will determine if additional people need to be notified.

Medical Emergency Actions
Routine Operations

N/A 1.12 In the event of a fatality (including all fatal heart attacks at work) or admission of 3 or more employees to the hospital for in-patient care, ensure the OSM or designee performs the following.

___ 1.12.1 Notify EH&S Duty person who will notify OSHA (8 hours oral reporting requirement).

___ 1.12.2 Refer to NSD 202 for other reportability requirements.

✓ 1.12.3 Notify Site VP or his designee.

✓ 1.13 **IF** the employee is transferred to an offsite medical facility.

THEN notify the STA to make appropriate notifications of the transport.

NOTE:	A traumatic injury refers to a physical injury. A trauma patient is someone who has suffered serious and life-threatening physical injury potentially resulting in secondary complications such as shock, respiratory failure and death.

N/A 1.14 **IF** A death, near death, or major traumatic injury incident occurs, {1}

THEN Notify Employee Assistance Program at extension 3315 or 9-704-382-7900.

✓ 1.14.1 Inform the EAP person of the event and the possible need to conduct a critical incident debriefing.

___ 1.15 Submit completed Enclosure 4.1 (Medical Emergency Actions-Routine Operations) to the Emergency Planning Section.

___ 1.16 Generate PIP with:

- time 4911 call was received
- time MERT dispatched
- location of incident.
  (no personal information should be included in PIP.){5}

___ 1.17 **IF** Medical emergency is work related and not a personal illness

THEN Contact HR duty person for completion of FFD for cause testing consideration.

- Ensure area code is entered in the call back number. HR Duty person **MAY NOT** be from Oconee.

_____ 1.18 Inform the employee's supervisor to notify the OSM: {4}

- If the injury/illness is a heart attack
- If death occurs 30 days after injury/illness

_____ 1.19 If injury is a heart attack then:

_____ 1.19.1 Document information on OSM turnover sheet and keep for 30 days.

A. IAAT death occurs within 30 days of injury/illness notify EH&S duty person and NRC.

_____ 1.20 The Operations Shift Manager or designee shall ensure notification of next of kin, if applicable.

- Fatality - Appropriate Division Manager performs notifications.
- Injury requiring hospitalization - Employee's Supervisor or Manager perform

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Admin-405

SRO ONLY

Determine Emergency Classification and Protective Action Recommendations

CANDIDATE _____

EXAMINER _____

REGION II
INITIAL LICENSE EXAMINATION
JOB PERFORMANCE MEASURE

Task:

Determine Emergency Classification and Protective Action Recommendations

Alternate Path:

NO

Facility JPM #:

Admin-405

K/A Rating(s):

System: GEN
K/A: 2.4.41
Rating: 2.9/4.6

Task Standard:

Appropriate classification is determined and associated Emergency Notification Form is completed.

Preferred Evaluation Location:

Simulator __X___ In-Plant ___X___

Preferred Evaluation Method:

Perform _____ Simulate __X__

References:

RP/0/B/1000/01
RP/0/B/1000/02
BASIS Document (Volume "A", Section "D" of the Emergency Plan)

Validation Time: 20 min.

Time Critical: Yes

==========

Candidate: _____ Time Start: _____
NAME Time Finish: _____

Performance Rating: SAT _____ UNSAT _____ Performance Time: _____

Examiner: _____ _____/_____
NAME SIGNATURE DATE

==========

Comments

SIMULATOR OPERATOR INSTRUCTIONS:

NONE

Tools/Equipment/Procedures Needed:

RP/0/B/1000/01 / RP/0/B/1000/02
BASIS Document (Volume "A", Section "D"

READ TO OPERATOR

DIRECTIONS TO STUDENT:

I will explain the initial conditions, and state the task to be performed. All control room steps shall be performed for this JPM, including any required communications. I will provide initiating cues and reports on other actions when directed by you. Ensure you indicate to me when you understand your assigned task. To indicate that you have completed your assigned task return the handout sheet I provided you.

INITIAL CONDITIONS:

Unit 2 at 100% power

0900: Reactor trip due a Sheared RCP shaft on 2A1 RCP

0900: Control Room has indications that the 2A1 RCP Seals have failed

0904: ES 1 & 2 actuated

- RCS pressure = 1580 psig and decreasing
- RB pressure = 4.7 psig and increasing
- The 2A HPI pump fails to Auto start and cannot be started manually

0910: RCS Saturated and stable at 1000 psig. All RCPs have been secured

- RB pressure peaks at 9.7 psig

0912: 2RIA-57 reads 350 R/HR stable

0915: RB Pressure = 0.2 psig and stable

INITIATING CUE:

You are to perform the required actions of the Emergency Coordinator by referring to RP/0/B/1000/01, Emergency Classification:

1. Determine Emergency Classification and record the time here. _____

2. Complete appropriate Emergency Notification Form for the current conditions.

THIS IS A TIME CRITICAL JPM

Note: Do not use Emergency Coordinator's judgment while classifying the event. When required, Jim Turner will maintain the Emergency Coordinator's Log, assume the duties of the Control Room Offsite Communicator and activate the ERO pagers if desired.

START TIME: _____

STEP 1:	Classify the Event at 0915	**CRITICAL STEP**
STANDARD:	Refer to RP/0/B/1000/01 (Emergency Classification) Enclosure 4.1 (Fission Product Barrier Matrix). Classify the event as a "**General Emergency**" due to the following: **Fission Product Barrier Matrix** • 5 points for RCS Barriers due to 1RIA-57 reading • 5 points for Fuel Clad Barriers due to 1RIA-57 reading • 3 points for Containment Barriers due to (Rapid unexplained containment pressure decrease after increase" 13 points total results in a **General Emergency** • *Determine 4.1.G.2 Loss of all 3 Barriers Time for Classification _____ ***Note: Required to classify the event within 15 minutes of starting.** **GO TO** RP/0/B/1000/002 (Control Room Emergency Coordinator Procedure)	___ SAT ___ UNSAT
COMMENTS:		
STEP 2:	Step 1.1 Events have occurred…	___ SAT
STANDARD:	Determine Emergency Plan has been activated and sign step.	___ UNSAT
COMMENTS:		
STEP 3:	Step 2.1 **IF** No EAL exists…	___ SAT
STANDARD:	Determine a General Emergency does exist and N/A the step.	___ UNSAT
COMMENTS:		

STEP 4: Step 2.2 Declare the appropriate Emergency Classification level. Classification _____ (UE, Alert, SAE, GE) Time Declared: _____ STANDARD: Declare a General Emergency due to: **Fission Product Barrier Matrix** Determine Time of Declaration of General Emergency is time declared in Step 1. COMMENTS:	___ SAT ___ UNSAT
STEP 5: Step 2.3 **IF** a Security event is in progress STANDARD: Determine a security event is NOT in progress and N/A step. COMMENTS:	___ SAT ___ UNSAT
STEP 6: Step 2.4 **IF** assistance from ERO personnel is desired/required: **THEN** activate ERO pagers from the ERO Pager Activation Panel: • For an EMERGENCY press **"Test"** button then press button **1** • For a DRILL press **"Test"** button then press button **3** STANDARD: Determine that assistance is desired. **Note: The Control Room Offsite Communicator will activate the ERO pagers.** COMMENTS:	___ SAT ___ UNSAT

STEP 7:	Step 2.5 Appoint Control Room Offsite Communicator(s) and perform the following: • Record Name _____ • Notify Offsite Communicator to **REFER TO** RP/0/B/1000/015A, Immediate Actions steps 2.1 and 2.2 **AND** Enclosure 4.7 (Guidelines for Manually Transmitting a Message) in preparation for notifying offsite agencies.	___ SAT ___ UNSAT
STANDARD:	A Control Room Offsite Communicator is appointed and name is recorded.	
COMMENTS:		
STEP 8:	Step 2.6 **IAAT** Changing plant conditions require an emergency classification upgrade, **THEN** Notify Offsite Communicator to complete the in-progress notifications per RP/0/B/1000/15A, (Offsite Communications From The CR) **AND** Re-initiate a clean copy of this procedure for the upgraded classification and stop this procedure.	___ SAT ___ UNSAT
STANDARD:	Determine that an upgrade is NOT required.	
COMMENTS:		

STEP 9: Step 2.7.1 Obtain the applicable Offsite Notification form in the control room and complete as follows: • Ensure EAL # as determined by RP/0/B/1000/001 matches Line 4. STANDARD: EAL # 4.1.G.2 is selected. COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT
STEP 10: Step 2.7.2 Line 1 - Mark appropriate box "Drill" or "Actual Event" STANDARD: Mark "Drill" COMMENTS:	___ SAT ___ UNSAT
STEP 11: Step 2.7.3 Line 1 - Enter Message # STANDARD: Enter Message # 1 COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT

STEP 12: Step 2.7.4 Line 2 - Mark Initial STANDARD: Mark Initial COMMENTS:	**CRITICAL STEP** ___ SAT ___ UNSAT
STEP 13: Step 2.7.5 Line 6 - A. Mark "Is Occurring" if any of the following are true: • . RIAs 40, 45, or 46 are increasing or in alarm • . If containment is breached • . Containment pressure > 1 psig Mark "None" if none of the above is applicable. STANDARD: "Is Occurring" is pre-marked on form. COMMENTS:	___ SAT ___ UNSAT
STEP 14: Step 2.7.6 Line 7 - If Line 6 Box B or C is marked, mark Box D. Otherwise mark Box A STANDARD: "Under Evaluation" is pre-marked on form. COMMENTS:	___ SAT ___ UNSAT

STEP 15:	Step 2.7.7 Line 8 - Mark "Stable" unless an upgrade or additional PARs are anticipated within an hour. • . Refer to Enclosure 4.9, (Event Prognosis Definitions)	**CRITICAL STEP** ___ SAT
STANDARD:	Mark "Stable".	___ UNSAT
COMMENTS:		
STEP 16:	Step 2.7.8 Line 10 - Military time and date of declaration (Refer to date/time in Step 2.2)	**CRITICAL STEP** ___ SAT
STANDARD:	Enter date and time entered in Step 2.2.	___ UNSAT
COMMENTS:		
STEP 17:	Step 2.7.9 Line 11 - If more than one unit affected, mark "All"	___ SAT
STANDARD:	Mark Unit 2.	___ UNSAT
COMMENTS:		

STEP 18: Step 2.7.10 Line 12 - Mark unit(s) affected (reference Line 11) **AND** enter percent power for each unit affected. • If affected unit is shutdown, then enter shutdown time and date. STANDARD: For Unit 2 Enter 0900 and today's date. **Note: Other Unit's data is NOT required for the initial notification.** COMMENTS:	___ SAT ___ UNSAT
STEP 19: Step 2.7.11 Line 13 - If the OSM has no remarks, write "None" STANDARD: Enter None. COMMENTS:	___ SAT ___ UNSAT
STEP 20: Step 2.7.12 If Condition "A" exists ensure following PAR's are included on Line 5. • Evacuate: Move residents living downstream of the Keowee Hydro Project dams to higher ground • Other: Prohibit traffic flow across bridges identified on your inundation maps until the danger has passed. STANDARD: Determine Condition "A" does NOT exists and N/A step. COMMENTS:	___ SAT ___ UNSAT

STEP 21:	Step 2.7.13 Line 17 - OSM signature, CURRENT Time/Date	**CRITICAL STEP**
STANDARD:	Signs form and enters CURRENT Time/Date. **Form complete within 15 minutes of classification in step 2.2.**	___ SAT ___ UNSAT
COMMENTS:		
	END TASK	

TIME STOP: _____

CRITICAL STEP EXPLANATIONS:

STEP #	Explanation
1	Required to classify event as a General Emergency.
9	Ensures that the correct communication form is selected.
11	Required to accurately complete notification form.
12	Required to accurately complete notification form.
15	Required to accurately complete notification form.
16	Required to accurately complete notification form.
21	Required to complete communication form with 15 minutes of classification.

CANDIDATE CUE SHEET
(TO BE RETURNED TO EXAMINER UPON COMPLETION OF TASK)

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